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No. 4.—A COMPARISON OF THE SYSTEMS OF MEAT AND MILK INSPECTION IN THIS COUNTRY AND ABROAD*

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INTRODUCTION

Since accepting the request of the Provisional Committee to prepare a paper for this Congress under the above heading, we have been greatly struck by the wisdom of whoever was responsible for the old saying that "Comparisons are odious." Taking into account the labour involved and the correspondence necessary to gather even the scanty information obtained and the difficulty of comparing systems in countries which often bear no comparison at all, we cordially agree that they so are!

Before commencing a paper it is always just as well to take the title into consideration, thus in the first place we had to interpret that given to us. In doing so we came to the conclusion that we should consider "this country" as (1) England and Wales, (2) Scotland and (3) Northern Ireland. On looking up in the dictionary the meaning of the word "abroad," we find that amongst other meanings it indicates "in or about foreign lands," and thus covers all other countries in the world. As it was manifestly impossible to gather all such information, nor could it have been included had it been obtained, we have limited our enquiries to a comparatively small number of the most important countries. Further, it must be pointed out that we have had to rely chiefly on the regulations in force in the various places, but whether the systems actually adopted are in accordance with such regulations, it is not possible to state without a personal knowledge of each country.

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Up to this point, we two collaborators have kept together, but as one has been selected to deal with the more solid portion of our subject and discuss meat, and the other the less substantial element of milk, our respective ways must now deviate and each must tread independently the path allotted to him. For this reason the section dealing with meat bears no special relationship to that on milk, each contributor having made his own enquiries and chosen his own countries.

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MEAT INSPECTION IN ENGLAND COMPARED WITH OTHER COUNTRIES

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HISTORY.

There does not appear to be any authentic history of meat inspection in this country apart from some local information which is not pertinent to this paper.

SLAUGHTERHOUSES.

This country appears to be one of the most dilatory of all countries in adopting public abattoirs.. There exist at present three types of slaughterhouses in England, *viz.*, Public, Registered and Licensed.

Local Authorities may refuse to grant or renew a licence, but Registered premises do not require a licence—hence the difficulty of abolishing them. There are said to be about 2,000 private slaughterhouses throughout England: those are not confined to Urban and Rural Districts; many of them still exist in large towns.

LAW AND REGULATIONS.

The control by Local Authorities of slaughterhouses and meat inspection is authorised by the various Public Health Acts. Those are:—

(*a*) The Towns Improvement Clauses Act, 1847.
(*b*) The Public Health Act, 1875.
(*c*) The Public Health Acts Amendment Act, 1890.
(*d*) The Public Health (London) Act, 1891.
(*e*) The Public Health (Meat) Regulations, 1924.
(*f*) The Imported Food Regulations, 1925.
(*g*) Certain Local Authorities have Special Acts.

DEPT. OF VET. MEDICINE

MEAT INSPECTION.

In the words of Ostertag (1905), England, which is otherwise so well organised with regard to public sanitation and called the cradle of hygiene, is entirely without a regulated system of meat inspection. Each Local Authority has its powers under the Public Health Acts and enforces them as it considers necessary. In the sections of the Acts dealing with food inspection the word *may*, not *shall*, is used; thus there is great variation in the method adopted by Local Authorities as to the efficiency of this special duty. Some take a great interest in the purity of the food supply, others consider the cost first and the efficiency afterwards. This is very obvious in the condition of meat which arrives in public markets from the various districts. It was generally thought that the Public Health (Meat) Regulations of 1924 would prevent the transport of diseased meat from one district to another. Unfortunately this in many instances is not so, for although "it is the duty of a person intending to slaughter an animal for sale for human consumption to give notice of such intention to the Local Authority so that an Officer may be present at the time of slaughter" and "if he observes any evidence of disease on the carcass or internal organs give notice of the fact to the Local Authority" and "shall not cause or permit the carcass of an animal, etc., to be removed from the place of slaughter until such carcass with its organs has been inspected or its removal has been authorised by an Inspector of the Local Authority," much diseased meat is still deposited in public markets *malgré* the sender's knowledge that inspectors are constantly on duty in the markets. What becomes of more obviously diseased meat in the areas where little or no inspection takes place must be left to the imagination.

The Sanitary Officers of those areas are not to blame, because their duties are far too multifarious to be efficiently carried out in the difficult work of inspecting meat in private slaughterhouses situated at a considerable distance from one another and in which killing may be done at any hour, day or night, every day of the year. The Officers referred to are the Medical Officers of Health and Sanitary Inspectors: the former officers are so busily engaged in matters relating to human ailments and prevention of disease that they practically never do any meat inspection except to express an opinion on any food submitted to them by the Sanitary Inspector. Contrary to the practice in any other country in the world, those officers are wholly responsible for the inspection of meat and have even power to seize live animals, although few, if any, have had training in animal pathology, while the Veterinary Surgeon, with his long course of special training in this subject, has no legal power under the English Acts. This is a matter of great surprise to meat inspectors in all countries from which we import meat. The anomaly is now well known and Medical Officers freely recognise and support the necessity of the law being altered.

The Departmental Committee on Meat Inspection, after carefully considering evidence placed before them, recommended this and the opinion has been strongly supported by eminent medical authorities such as Dr. Leighton, Prof. Symmers and others. The Veterinary Profession seems to have been very lax, when the Public Health Acts were being framed, in not making suitable representations to Parliament that the Veterinary Officer should, so far as the inspection of meat, milk, etc., is concerned, have at least the same legal power as Medical Officers. There seems little doubt that in any amendment to the present Public Health Act or in new Acts this will be done, and it is gratifying to know that Medical Officers are giving the proposal their complete support.

The Council of the Royal College of Veterinary Surgeons has constantly kept in view the efficient training of students to fit them after graduation to be regarded as experts. The Curriculum now consists of five years' training and one year extra to obtain the Diploma in Veterinary State Medicine which is now required by nearly all Local Authorities where candidates apply for Public Health appointments.

Comparison with Other Countries

As a preliminary it is necessary to emphasise that in all other countries the responsibility for the freedom from disease of all meat and meat products rests solely with Veterinary Officers. In Scotland and Ireland Medical Officers may also act as meat inspectors.

SCOTLAND.

This country, always in the van of progress, had Ordinances passed regulating meat inspection in the years 1153, 1192, 1284, and in 1892 a law was passed giving Local Authorities power to erect public abattoirs and forbidding the use of private slaughterhouses where abattoirs exist. The Public Health (Scotland) Act, 1897, provides for the appointment of veterinary surgeons as meat inspectors and the Scottish Meat Regulations state that only Medical or Veterinary Officers can act as meat inspectors, an exception being made in the case of lay inspectors who had acted as such for seven years prior to the passing of the Regulations. Lay inspectors act as Detention Officers only. Very few private slaughterhouses exist in Scotland, and Dr. Leighton has stated that 90 per cent. of the home-killed meat consumed in that country passes through public abattoirs. Prof. Whalley was the first veterinarian in Britain to train veterinary surgeons as meat inspectors and to publish the first book on meat inspection.

IRELAND.

Under the Agriculture Produce (Fresh Meat) Regulations, 1930 (Southern Ireland), and the Agriculture Produce (Meat Regulations) Act, 1930 (Northern Ireland), only veterinary surgeons appointed by the Ministries of Agriculture can act as inspectors of meat intended for export. In towns such as Dublin and Belfast veterinary surgeons are responsible for the freedom of disease in meat and meat food products. In country districts and smaller towns sanitary officers under the guidance of Medical Officers examine meat. Although the aforesaid Regulations have only been a short time in operation, the examination, with stamping, of the meat exported from Ireland has so improved as to justify the extension of the system to all meat whether for home consumption or export, and this is gradually being done. At March, 1931, Byelaws to that effect had been adopted by twelve Local Authorities in Southern Ireland. Many of the Veterinary Officers are wholly engaged in the work—others part time only.

FRANCE.

This country was one of the first, if not the first, to erect public abattoirs. A public abattoir, still existant, was erected in Amiens in 1300 and is worthy of a visit by those interested in the subjects of meat inspection and slaughter of animals. By order of Napoleon, public abattoirs were erected in Paris in 1807 and the order was extended to the provinces in 1810. The appointment of meat inspectors is entrusted to Mayors of towns and villages. Veterinary surgeons are entirely responsible for the work; they may be whole- or part-time officers, depending on the number of animals slaughtered, and they may be assisted by lay inspectors. Veterinary Doctor Chritien, of Paris, informs me that on his staff there are 53 veterinary officers and 49 lay inspectors. Meat passed as sound is stamped. Where public abattoirs exist no private slaughterhouses are permitted.

BELGIUM.

This country framed Ordinances regulating meat inspection in 1333. All responsible inspectors must hold a Veterinary Diploma; they may be assisted by specially trained lay inspectors, and the appointments are made by the Mayors of the various Communes. If meat inspection is neglected or not properly carried out the Government can organise a system of inspection and appoint its own officers. Veterinary Officers appointed for this purpose may be whole- or part-time officials, depending on the number of animals slaughtered.

GERMANY.

This is a country in which meat inspection, both *ante-mortem* and *post-mortem,* is carried out as it should be done. Here were the first public abattoirs erected and veterinary surgeons appointed as meat inspectors, and from this country emanated the standard work on meat inspection by Dr. Ostertag, well known to many members of our profession. (*Note:* a new edition has lately been published.) The public abattoirs in Germany are examples of the interest taken in the examination of all meat supplies: they are splendid edifices. All inspectors must be Veterinary Doctors, they may be assisted by "Non-Veterinary Inspectors," but chiefly in country districts. In cities and towns large numbers of whole-time veterinarians are employed and on market days part-time officers are engaged; appointments are made by the City or Town Councils, but the State appoint officers for country districts. The scientific method in which meat inspection is carried out and the preservation of pathological specimens are worthy of special mention. It is stated that there are 867 public abattoirs in Germany; the number of private slaughterhouses has not been ascertained.

ITALY.

In this country *all* meat inspectors must be Veterinary Doctors. No medical men or lay inspectors are employed. In all the principal abattoirs the officers are employed as whole-time officials, but in small Communes they may be engaged part time. It is stated that there are about 1,400 public abattoirs in this country. All private slaughterhouses are under the supervision of local veterinary officers appointed officially by the Mayors of the various Communes.

SWITZERLAND.

In this country two types of meat inspectors exist, *viz.*, veterinary and lay; the latter are only employed where the position is so small and unimportant as not to merit the expense of engaging a veterinarian. In all towns appointments are made by the Municipalities, in small cantons they are made by the Government. In large abattoirs the officers are paid fixed salaries, part-time officers are remunerated according to the number of animals killed. It is worthy of note that as a general rule each town of 2,000 inhabitants has a public abattoir. There are about 800 public and private abattoirs in the country. Some of the former are excellent, as seen by the writer, *e.g.*, Zurich, Berne, La Chaux-de-Fonds, Chiasso and St. Gall.

DENMARK.

In this country all meat and offal intended for export is examined by veterinary officers who are appointed by the Minister of Agriculture. The inspection is conducted both *ante-mortem* and *post-mortem;* the same officers are responsible for all sanitary arrangements and cleanliness of

the abattoirs. The meat passed is stamped. Denmark exports very large quantities of excellent bacon to this country. Most of the abattoirs are owned by Co-operative Societies in which the numbers of pigs slaughtered weekly vary from 200 to 1,200.

HOLLAND.

Only Veterinary Surgeons are charged with the responsibility of meat inspection both *ante-* and *post-mortem*. They must pass a special examination before being appointed. Lay assistants may be appointed to work under the supervision of the veterinarians. The Local Authorities appoint the officers, some of whom are part-time and others whole-time officials. Dr. Berger states there are 82 Municipal and 59 private abattoirs in Holland. Meat after examination is stamped. Some of the slaughterhouses are quite modern and examples of hygienic construction.

UNITED STATES OF AMERICA.

In this country all meat and meat products intended for inter-state or export transport is examined by veterinarians appointed by the Federal Meat Inspection Service assisted by lay inspectors. Dr. Mohler states that the number of officers engaged in this work was, during the last fiscal year, 2,400, stationed in 811 establishments in 278 cities and towns. The efficiency of the work done is well known to those who are responsible for meat inspection. All meat passed is stamped. The B. of A. Industry officers during last year inspected about 70 per cent. of the meat and meat food products produced in the U.S.A. at a cost of one cent for each 22 pounds of dressed meat or lard produced; 74,000,000 food animals were inspected *ante-* and *post-mortem*—of those, 202,000 animals and carcasses with 958,000 parts of carcasses were destroyed on account of 39 diseases; 30 per cent. of the animals killed in the U.S.A. are inspected by officers appointed by the various Local Authorities. The good meat inspection service in the U.S.A. was initiated by the late Dr. Melvin, an able veterinarian, and it has been augmented and gradually improved by Dr. Mohler, also a veterinarian.

CANADA.

The system of meat inspection and appointment of officers in this country follows the lines of that of the U.S.A. All inspectors must be graduates of a recognised Veterinary College and pass an examination conducted by the Health of Animals Branch, then serve a probation of six months before permanent appointment. Lay inspectors are employed as assistants to the veterinarians; they also have to serve a probation of six months' training. Meat consumed locally is inspected by officers appointed by Municipal Health Authorities and, in the words of Dr. Hilton, their laws are as varied as they are numerous.

NEW ZEALAND.

The whole of the meat inspection in this country is conducted by Veterinary Officers assisted by specially trained meat inspectors, who have to undergo two years' practical and theoretical training under the guidance of veterinarians and pass an examination before being gazetted to the permanent staff. All appointments are made by the Department of Agriculture. All towns with 2,000 inhabitants must possess a public abattoir and for this reason there are few private slaughterhouses. Due to the inspection system being conducted by Government Officers from one centre, the work is carried out efficiently and uniformly. At the centre is the Director General of Agriculture and the Director of the Animals Branch; the country is divided into districts, each in charge of a superintendent under whom the officers work. All officers, including the Director General, are veterinarians. The system is so good as to form a model for any country to adopt. We receive 50 per cent. of our imported mutton and lamb from this country.

AUSTRALIA.

Meat inspection in this country is conducted on a complicated system. Meat and meat food products *intended for export* are examined and certified by Federal Veterinary Officers assisted by lay inspectors who have received special training and passed a satisfactory examination. As in New Zealand, the country is divided into districts, or rather States, each with a superintendent in charge; the work is very efficiently done. There exists the curious anomaly of officers of the Federal Government and locally appointed officers, who examine meat for local consumption, working side by side in an abattoir. This appears to an observer as not only expensive but apparently leads to variations in opinion and lack of uniformity. Recently the Federal Government at Brisbane in Queensland has taken over the local inspection for this area; if the experiment is successful it is evidently intended to adopt this method in other large centres.

ARGENTINA.

This is a very important country to us from a meat inspection point of view, as the greater part of our imported beef is derived from it. The abattoirs in which the animals are slaughtered are very large and most of them of the very latest type, embodying the most modern ideas. Their total killing capacity per day is over 20,000 cattle and 50,000 sheep. The proprietors pay to the Government a fixed sum per animal for inspection purposes and the Minister of Agriculture provides the inspectors. All the meat inspectors are Doctors of Veterinary Science who have undergone a five-years' course of training in an Argentine Veterinary College. Lay assistants are

employed. The work is very efficiently performed and all meat passed bears a Government stamp, with a number indicating the abattoir of origin. Animals must be accompanied by a veterinary certificate when sent to the abattoirs, otherwise entry is prohibited.

URUGUAY.

This country exports considerable quantities of meat to this country. All meat inspectors must be Doctors of Veterinary Science, assisted by lay inspectors specially trained. All meat exported bears a Government stamp and the whole system follows the lines adopted by the Argentine Ministry of Agriculture. Experience in this country shows that the work is carefully done.

BRAZIL.

Brazil has lately increased its export of meat to this country and will no doubt gradually become an important source of meat supplies. Only Veterinary Officers are employed as meat inspectors, and the Argentine system of inspection is in operation.

CHILI.

Only mutton and lamb is imported from this country. At one time there appeared to be practically no system of meat inspection in operation, but representations from the City of London were made. British Veterinary Officers were sent to Chili to initiate meat inspection, and now Veterinary Officers trained in the country are responsible for examining and certifying meat and meat food products for export.

In conclusion, I desire to tender my very sincere thanks and gratitude to all the Veterinary Officers in the various countries who so very kindly answered the questionnaire sent to them; also to my friend Major Rabagliati, who has (in my absence) promised to present the paper. The collection of the information, translating and compiling the work has involved considerable labour, but if the information which has hitherto been unobtainable in this country proves of value to our profession I will be amply repaid for my efforts.

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MILK INSPECTION IN ENGLAND COMPARED WITH OTHER COUNTRIES

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GENERAL.

The system of milk inspection in any country essentially depends upon the powers given and the laws in force for the production and sale of milk and milk products. In the endeavour to obtain the information required a number of leading veterinarians has been written to. Unfortunately from several of these no replies have been received; hence the scope of this section of the paper must be somewhat more restricted than was originally intended. To those who have so kindly replied to the enquiries made and who have sent copies of milk regulations, I would express my very grateful thanks. Before proceeding to any comparison of the different systems I would point out that in this country alone there are at least three sets of regulations in force, namely, those for England and Wales, those for Scotland, and those for Northern Ireland. Even under the one law existing in England and Wales the manner in which it is carried out and the system actually in force varies locally within very wide limits. In Scotland the legislation is probably carried out in a much more uniform manner.

Rather than describe the regulations of each country separately, it has been considered preferable to compare them under certain special headings. Owing to the limits of space prescribed by the Association these must be greatly curtailed and those having particular bearing on the veterinary side of milk production have chiefly been selected. Regulations regarding the handling and sale of milk after it leaves the producer are very numerous in most countries, but cannot be specifically considered here.

The conditions prevailing in France are so peculiar that special notice of them is called for, as they can hardly be compared to those of any other country dealt with. In a word, there are no official regulations dealing with production and anyone may produce milk without being restricted or controlled in any way. There is, however, a Ministerial Decree dated March, 1924, laying down certain conditions under which milk and milk products may or may not be sold as regards chemical quality, methods of labelling and so on, rather similar to our Food and Drugs Regulations. This is administered by a service known as the "Service for the Repression of Frauds." One article prohibits milk from being sold from cows affected with "disease"—the list of those to be included is to be scheduled by the Ministry of Agriculture, but so far it is still under consideration. In 1927 a system to which attention may be drawn was instituted whereby a farmer may pay a sum to the local authority and have his cows examined at least once monthly by a veterinary officer of that authority, and his employees examined in like manner by a medical officer. He must undertake to conform to the directions of the veterinary officer as regards his cattle, buildings and methods of production and can then sell his milk as "produced under official control." Although no special standard of cleanliness is laid down, such milk can be sold at an enhanced price, but up to now, only a few have made use of the system. In France there is no Tuberculosis Order, although an old

ordinance exists under which cattle showing open symptoms of tuberculosis can be ordered to be slaughtered, but I am informed that use is never made of this. Definite regulations for milk control are now being considered by the Public Health authorities and it is hoped that before long they may become law.

In Canada there are no Federal laws dealing with milk production, but each municipality makes its own regulations, many of which are severe and exacting. Much the same system exists in the United States of America where special milk ordinances are drawn up by the towns and cities and even most of the states as well.

ADMINISTRATION OF MILK REGULATIONS.

England and Wales.—Milk legislation is drawn up by the Ministry of Health and in counties is administered in part by the local sanitary authorities and in part by the county councils; but in the towns wholly by the councils of county boroughs. All local bye-laws and special powers originally possessed by certain cities have been revoked by the Milk and Dairies Order of 1926 with the apparent object of making milk control more or less uniform throughout the country. In practice, however, this has not been achieved, even although county councils may exert a supervisory control on the sanitary districts within their areas. With the exception of Scotland, England appears to be the only country where the butter-producing farms are under the same regulations as those producing liquid milk, but the equality of standard is more theoretical than real.

Scotland.—Milk control in Scotland is carried out by the local authorities under two principal Acts of Parliament, but each authority may make its own bye-laws. Here again the butter-producing farms are included in the general regulations. The county councils have greater powers than in England, and the administrative machinery is much simpler.

Northern Ireland.—General regulations not unlike those in England exist, drawn up by the Ministry of Home Affairs, but administered by the local authorities.

The Irish Free State.—The regulations are very similar to those of Northern Ireland and are carried out by local authorities. Mention should here be made of the "Dairy Produce Act of 1924," a long Act which deals with all dairy produce, including that for export. It is understood that further legislation dealing with milk is at present under the consideration of the Free State Government.

Canada.—There are no general Federal laws, but the Government give powers to municipal authorities to make bye-laws. These cover all aspects of milk control and are usually far-reaching and very thorough.

Denmark.—Local authorities have their own regulations, but each must be authorised by the Government. Although the Government has issued standard regulations as a model, the actual administration and manner of enforcing the bye-laws vary considerably. As far as Copenhagen is concerned, the regulations, which are very strict, are enforced by the Commission of Public Health.

Belgium.—There are no special regulations concerning the methods of production, although there are many dealing with the handling and transport of milk. In certain cases special local regulations are said to be in force.

Holland.—Under a Royal Decree local authorities may enforce certain regulations on producers in accordance with a Milk Order.

Germany.—Regulations affecting the whole of the country are in force and power is given to local authorities to make supplementary regulations.

Sweden.—General regulations concerning milk production are in force throughout the country and fixed by the respective Governor of each Province, but every town may make its own regulations in addition. It would appear that the butter-producing farms are not included along with those selling liquid milk.

The United States.—Practically every town, city and state has its regulations and laws concerning production and sale. A model set of regulations is drawn up by the United States Health Service. Provision is also made for a "Certified" and a "Grade A Raw Milk."

REGISTRATION REQUIREMENTS.

For any control to be imposed on milk production some system of registration of producers is the first essential. A comparison of these requirements shows more than anything the importance placed by the various countries upon inspection.

England and Wales.—Registration of all producers of milk for sale as fresh or for butter or cheese making, is compulsory.

Scotland.—Similar registration is necessary, the responsible authorities being the councils of certain large burghs and the county councils.

Northern Ireland.—All farms producing liquid milk for sale must be registered by the sanitary authorities and also those selling milk to creameries for the manufacture of butter or cheese, but not those on which butter and cheese are made. The last-named farms are thus practically uncontrolled, but as they are as a rule small premises where to a great extent calves are reared, it is not considered worth while registering them.

The Irish Free State.—The regulations in this respect are similar to those of the north.

Denmark.—Registration is required in all towns and some rural areas, but in most of the latter, producers are not registered. The great majority

of rural producers supply milk to co-operative butter and cheese factories and these appear to be mostly unregistered.

Canada.—Most municipalities insist on registration.

Belgium.—It is stated that no registration is required.

Holland.—No general registration is required, though it is compulsory in certain municipalities.

Germany.—All producers selling milk direct to the consumer must be registered. Butter producers come under a different law.

Sweden.—Those selling milk in towns must notify the fact to the authorities and apparently must state the source of supply.

The United States.—Practically every state has its own laws necessitating registration.

VETERINARY INSPECTION OF DAIRY COWS.

In this country an ever-increasing consensus of opinion exists that without healthy cows the milk supply cannot be satisfactory, but despite this it is surprising that local authorities are so slow to realise that the only way to minimise the risks of milk being put on the market from diseased cows is to place them under veterinary control. It is thus especially interesting to compare the part played by the veterinary profession in the production of milk in the various countries we are considering.

England and Wales.—Power exists for local authorities of counties and county boroughs to institute a regular veterinary inspection of all cows that produce milk for sale either as fresh milk or for any other dairy product. Whether or not advantage is taken of this power and the number of inspections to be carried out, are left to the discretion of the authorities concerned. Veterinary inspection is now usual in the chief county boroughs and in many boroughs, but very few of the county councils have availed themselves of the opportunity. Herds licensed under the Milk (Special Designations) Order of 1923 must be submitted to veterinary examination—six-monthly for Certified and Grade A (T.T.) herds and quarterly for Grade A. Some authorities employ whole-time and some part-time officials. In a few areas the hygienic control of milk is under the veterinary staff, who nominally report to the Medical Officer of Health, but more frequently it is in the hands of the sanitary inspectors.

Scotland.—In Scotland a regular veterinary inspection of all cows on registered premises at least once a year is a statutory duty imposed on the councils of all counties and burghs. In many of the Scottish burghs inspections are carried out at very frequent intervals. The Scottish Board of Health insist on the employment of whole-time officials unless special authority is granted to employ a part-time staff. Herds licensed under the Milk (Special Designations) Order must be examined three times a year for Certified and Grade A (T.T.) and quarterly for Grade A. As in England, the hygienic control of the farms may or may not be delegated to the veterinary staff.

Northern Ireland.—Local authorities may make their own arrangements concerning this inspection and I am informed that most authorities carry it out by means of part-time veterinary surgeons. All cows in "Grade A (tuberculin tested)" herds must be examined six-monthly. There are no Grade A licences. The hygienic control is usually under the veterinarian, who reports to the medical officer.

The Irish Free State.—The same regulations apply as in Northern Ireland, but the inspections are optional on local authorities. When carried out, part-time veterinarians are employed with the exception of three cities where whole-time officials have been engaged.

Canada.—It would appear that municipal authorities look upon the inspection of cows as an obligation. Some make use of the Federal veterinary staff under the Federal Tuberculosis Eradication Scheme; others employ whole- or part-time officers, some of whom, however, are lay assistants. In Canada the hygiene of milk production is usually under the veterinarian who acts under the medical officer of health.

Denmark.—A veterinary inspection is obligatory in the towns, but optional for cows whose milk is used for butter and cheese making. The staff employed may be whole- or part-time. As far as Copenhagen is concerned, all cows are inspected monthly by the veterinary staff and those producing special milk for children must be examined at least every fortnight. Veterinarians here assume complete control of milk production.

Holland.—Local authorities have whole-time veterinarians, who must control disease in cows, but it seems doubtful from the information received if there is any regular veterinary inspection.

Belgium.—No veterinary inspection is required. The medical officer assumes responsibility for what hygienic control is enforced.

Germany.—All cows producing special graded milk are inspected regularly by veterinary surgeons, who also control methods of production. On other farms if disease is suspected the veterinary surgeon must be called in. Both whole- and part-time officers are employed and milk production methods are under the control of this staff, the medical officer assuming responsibility for the human element on the farms. Whole-time staffs are more frequent than part-time.

Sweden.—Milk sold in the towns is subject to veterinary control both by the town veterinary surgeon and by the veterinary official appointed by the Committee of Health. Veterinary inspection, however, is only regular in the case of cows producing so-called "control milk." The veterinary surgeon employed by the town is a whole-

time official, while he who is in the employ of the Health Authority is allowed to practice. The general control of milk hygiene in the towns is in the hands of the veterinary surgeon, who, however, nominally works under the Medical Officer.

The United States.—Most cities and states make their own arrangements and insist on veterinary inspection. Whole-time officers are the rule, but some part-time officials are also to be found. The control of milk hygiene may be under the veterinarian if he is also appointed as a "milk inspector." Many milk inspectors are laymen who are often graduates of agricultural colleges.

POWERS TO DEAL WITH BOVINE TUBERCULOSIS.

The importance placed on the presence of tuberculous cattle or the finding of tubercle bacilli in milk varies greatly in different countries. While in some cities milk from a cow which even reacts to the tuberculin test is not considered fit for human consumption — certainly if not pasteurised—in others but little notice is taken of the disease at all.

England and Wales.—Under the two milk Acts it is an offence to sell milk from a cow with tuberculosis of the udder, and under the Tuberculosis Order milk may not be used unboiled from any cow showing signs of one of the scheduled forms of disease. Complicated machinery exists to deal with cases where tubercle bacilli have been found in bulk samples of milk.

Scotland.—Provisions with regard to tuberculosis, very similar to those in England, are in force. Both in Scotland and England the Milk (Special Designations) Orders make provision for the licensing of special herds which are certified as free from tuberculosis. The two possible grades of milk to which these apply are "Certified" and "Grade A (tuberculin tested)."

Northern Ireland.—Somewhat similar powers to those of Great Britain exist. In addition to a Tuberculosis Order, there is also the "Tuberculosis Prevention (Ireland) Act of 1908," which enables local authorities to cause to be slaughtered a cow with tuberculosis of the udder and allows certain compensation to be paid to the owner of such an animal. Licences are given for a special "Grade A (tuberculin tested)" milk, but there is no "certified."

The Irish Free State.—Here again very similar powers to those on this side of the water exist. The Irish "Bovine Tuberculosis Order of 1926" not only makes it incumbent on owners to report cattle with scheduled forms of the disease, but also the carcass of any animal which showed signs before its death or slaughter. The "Tuberculosis Prevention (Ireland) Act of 1908" also holds good. At present there is no special graded milk in this country.

Canada.—Many municipalities have adopted the Federal scheme for tuberculin testing all their cows and the elimination of reactors. Under this scheme no milk unless efficiently pasteurised must be sold from cows which have not passed the test. Some few areas merely insist on the slaughter of all cows evincing open symptoms of tuberculosis.

Denmark.—Cows with tuberculosis of the udder, uterus or with advanced tuberculosis of the lungs must be slaughtered. It is an offence to sell milk from any "open case" of the disease and in Copenhagen and certain other towns "special children's milk" may not be sold from cows other than those which have passed the tuberculin test.

Holland.—While no official machinery exists for the compulsory slaughter of actively tuberculous cows, such animals must be moved out of milking herds. A special society for combating bovine tuberculosis has been formed and arranges for compensation to be paid for tuberculous cattle slaughtered.

Belgium.—No powers are available for slaughtering tuberculous cattle, but milk coming from cows with "open tuberculosis" is prohibited from use, especially if the udder is affected.

Germany.—The slaughter of "open cases" of the disease may be ordered by the police, especially if the udder is involved and milk from such animals may not be used. A voluntary system of slaughtering obviously tuberculous cows has been instituted and is recognised by the State. Compensation is arranged for.

Sweden.—According to Swedish law a veterinary surgeon or stock-owner is compelled to send a sample of milk from any cow which is suspected of being affected with tuberculosis of the udder to the Government Veterinary Bacteriological Institute. If found to be positive the cow responsible must be slaughtered immediately at the expense of the Government.

The United States.—A scheme for tuberculosis eradication exists similar to that in Canada, and most states and cities avail themselves of it. In most areas milk must be produced from tubercle-free cows unless it is first pasteurised.

POWERS PROHIBITING THE USE OF MILK FROM COWS SUFFERING FROM DISEASES OTHER THAN TUBERCULOSIS

England and Wales.—No milk must be used from cows suffering from acute inflammation of the udder, acute mastitis, actinomycosis of the udder, suppuration of the udder, foot-and-mouth disease, anthrax, any comatose condition, any septic condition of the uterus or from any infection of the udder or teats which is likely to convey disease.

Scotland.—The powers to prohibit diseased milk are wide and include "sores of the teats accompanied by suppuration and any disease liable to contaminate milk."

Northern Ireland.—Milk may not be used from any cow suffering from "such diseases of the udder as shall be certified by a veterinary surgeon to be tuberculous or otherwise dangerous to health."

The Irish Free State.—Similar powers to the last named are in force.

Canada.—The Medical Officer of Health has power to refuse to licence any dairyman and to cancel licences at any time. If owners refuse to slaughter diseased cattle their licences can be cancelled. Milk is prohibited from cows with "any disease of the udder or tuberculosis."

Denmark.—The local veterinary practitioner is expected to prohibit the use of milk from any cow suffering from scheduled disease and report severe outbreaks of disease to the State Veterinary Officer. The diseases scheduled are—anthrax, blackquarter, rabies, icterus, mastitis, pyæmia, septicæmia, intoxications, foot-and-mouth disease, cowpox, diarrhœa and other infectious diseases.

Holland.—Milk is prohibited from cows affected with inflammation of the udder (*i.e.*, from the affected quarter or quarters), inflammation of the intestines along with diarrhœa, wounds of the udder or inflammation of the uterus.

Belgium.—Although there appears to be no veterinary supervision to enforce them, the regulations lay down that milk from cows having been given drugs liable to be excreted in the milk, mastitis (from the affected quarters only) suppuration of the udder, acute metritis, or retention of the fœtal membranes, enteritis with profuse diarrhœa, rabies, pleuro-pneumonia, cattle plague, anthrax, septicæmia, Malta fever—(Note: It is not stated if this includes contagious abortion)—and foot-and-mouth disease, unless such milk be treated by heat.

Germany.—Milk is prohibited from cows suffering from a variety of diseases such as septicæmia, uterine diseases, cows excreting bacteria of the enteritic group, cows which have been given certain drugs, cows suffering from cattle plague, foot-and-mouth disease or from those vaccinated against anthrax within a period of nine days.

Sweden.—It is laid down in the regulations that milk from animals which are or could reasonably be suspected of being carriers of disease which could affect the quality of the milk, may not be used for human consumption.

The United States. — The diseases usually listed are tuberculosis and mammitis, although the detection of any abnormal condition would bar the milk from sale. There has been some question of prohibiting the milk from cows positive to the test for contagious abortion, but no definite steps have yet been decided on.

MILK STANDARDS.

Space does not permit of the comparison of the legal standards of milk as regards fat and non-fatty solids. These, however, appear to vary between 3 and 4 per cent. for fat and 8 and 9 per cent. for non-fatty solids. Standards for bacterial counts are laid down by certain countries, notably by the United States and Canada, but elsewhere do not appear to be insisted on.

Although every care has been taken it has been extremely difficult to check all the statements recorded from the different sources of information received. The author, therefore, craves the indulgence of readers should any omission have been made or mis-statements given.

Discussion

This was the first paper to be considered by Congress on the morning of Wednesday, August 10th.

The President of the Public Health Section, to which the paper was presented (Mr. Arthur Gofton), said that unfortunately Colonel Dunlop Young had left this country for a trip abroad a few days before, and would not be able to support his paper in person. In common with other papers, it would be taken as read, but Major Rabagliati desired a few minutes in which to say a few words of introduction.

Major Rabagliati, in introducing that paper, said he would like to call the delegates' notice to the fact that he stood there in the unfortunate position of having been rather cruelly deserted by his friend and colleague for, as Mr. Gofton had told them, Colonel Dunlop Young had gone abroad on one of his expeditions.

Colonel Dunlop Young, in the paper, gave the speaker a sort of power of attorney to present the paper, and although he did not say so, he expected the speaker to answer any questions which the delegates put in the course of discussion, and to stand up to any criticism. Unfortunately, the speaker had not seen the data on which Colonel Dunlop Young had based the information he had given them, except as far as it concerned this country; therefore he hoped the meeting would be sympathetic and not put too many conundrums in his way that he would not be able to answer.

When perhaps in rather a weak moment he accepted the request of that Association to draw up that paper, he had no idea that it would be so difficult to collect the information necessary to write it, and having collected the information, to put it concisely and in what ought to be readable form. He was rather afraid his paper was more like a sort of catalogue or a set of student's notes of a lecture. However, it had been very difficult to condense it in such short space with the enormous amount of information he had to collect.

Lieut.-Colonel J. A. Dixon, T.D., M.R.C.V.S. (Leeds), who opened the discussion, said:—

In the first place I should like to express my thanks to the Council of the Association for permitting me to open the discussion on this subject, which is regarded by many professional colleagues as the most important section of veterinary work to-day. It is a subject with which I have been intimately associated for more than 30 years and I think the whole profession is indebted to Lieut.-Colonel Young and Major Rabagliati for so ably and concisely bringing to our notice what is being done in other countries with regard to the protection of the public's food supply. All of us who are actively engaged in this work are so busy and engrossed in our own duties that it is desirable for us occasionally to raise our eyes from our own immediate work and to see what our colleagues abroad are doing, and the joint paper we are here to discuss gives evidence that a large amount of trouble has been expended in collecting the information.

As our essayists remark at the outset, the two subjects of meat and milk must, in the first instance, be considered separately, and turning our attention firstly to meat inspection we cannot fail to be struck with the fact that in this country we are lamentably far behind in our meat inspection service. This failing is largely attributable to the senile state of the law regarding meat inspection in England and it is to be hoped earnestly that when the long promised amendment and revision of public health law in England is available, energetic steps will be taken by the veterinary profession to see that meat inspection in England is put on as satisfactory a basis as that existing in other parts of the Empire and foreign countries. Lieut.-Colonel Young pays considerable attention to meat exporting countries and it is both interesting and encouraging to find that in all the British Dominions and foreign countries engaged in the exportation of meat, veterinary surgeons are responsible for the inspection of such meat, but it is surprising to find that in at least two British Dominions, whilst meat for export is inspected by veterinarians, other meat for local consumption is in the hands of less expert persons and it is to be hoped that the experiments in the administration of the meat inspection service now being carried out in part of Australia will give such satisfactory results that this dual inspection will be abandoned everywhere. It is difficult to understand why any Government should fail to see that it is as important for the meat supply of their own people to be as satisfactorily inspected as the meat intended for export to other countries.

Turning our view to places nearer home, it is depressing to see such a disparity between the meat inspection service in the two parts of Britain. Scotland, as we are informed, has always been a progressive country in public health administration, but an improvement of the law and practice of the law in meat inspection in England so as to bring it to the level of efficiency enjoyed in Scotland is long overdue. In England the situation regarding meat inspection must be regarded on all hands as very unsatisfactory. With it is intimately bound up the question of private slaughterhouses, and it is not too much to say that so long as private slaughterhouses, either registered or licensed, are allowed to exist, no really satisfactory system of meat inspection can be established. This review of our essayist is, of course, contemporary more than historical, but it is interesting to learn that Napoleon ordered the first public abattoir; such action could be expected from such a leader and although I do not know whether the Romans used public abattoirs, it is certain that the ancient Jews realised the importance of a sound meat supply, for that early sanitarian, Moses, took very energetic steps to safeguard his people from meat which was unsound from either disease or *post-mortem* changes. The provision of public abattoirs does not adequately meet the case; this measure, to be effective, must be accompanied by the complete abolition of private slaughterhouses, if for no other reason than that if they are permitted to remain they will be used as places of refuge by those butchers who, for various reasons, wish to practise their slaughtering in more or less privacy, not to say obscurity. The Public Health (Meat) Regulations of 1924, following the publication of the report of the Departmental Committee on Meat Inspection, were obviously intended, among other things, to reduce the number of private slaughterhouses, and, in fact, local authorities were officially invited to try to concentrate slaughtering in as few private slaughterhouses as possible, and this suggestion from official sources along with some of the provisions of the Public Health (Meat) Regulations tend to show that the persons responsible for their issue were not fully conversant with the ways and habits of the owners and users of private slaughterhouses. The idea of notifications of intended slaughter is good but it is of little use butchers giving such notices unless local authorities are required to provide an inspectorial service which is capable of carrying out inspections with regard to all such notifications. With modern methods of transport there is no hardship imposed on the meat trade in any part of the country in requiring butchers to do their slaughtering at public abattoirs, for even in rural districts satisfactory premises could be provided and equipped which could serve the needs of wide areas, but I am strongly of the opinion that public

abattoirs wherever provided should be part of the equipment of the local sanitary authority and not the markets authorities as is so often the case. With a few notable exceptions, markets authorities regard themselves as responsible for the collection of tolls, thereby making profits for the relief of local rates, and have very little, if any, regard for public health matters, and it is considered that the preparation, storage and distribution of meat is essentially the responsibility of those officers who are concerned with public health.

The training and qualification of the officers concerned also deserves attention. Under the old Acts the term Inspector of Nuisances conveyed or implied neither training nor ability and it would seem that the only defect of meat envisaged by the legislature of those times was decomposition, which speaks for itself, but it is now realised that meat may be rendered unfit for the food of man by diseased processes and it would seem to be necessary that persons entrusted with the inspection of animal carcasses should be trained in the recognition of all diseased conditions. But there are still throughout England many men responsible for meat inspection who have not the slightest training or ability in the subject. As one who has been intimately associated with the training and examination of sanitary inspectors in meat inspection I have no hesitation in saying that, whilst such trained men are useful as detention officers and assistants, they are not competent to be the supreme authority on the fitness or unfitness of a carcass. No doubt there is room in the meat inspection service for some lay inspectors adequately trained, as is provided for in Scotland, but the inspection of all animal carcasses should ultimately be in the hands of trained veterinarians. (Hear, hear.) It is not meant here that these trained veterinarians should be merely administrative officers supervising and controlling the lay inspectors, but that veterinary surgeons should be on the slaughterhouse floor and that nothing should pass from the slaughterhouse until it has been inspected and approved by a veterinarian. All approved carcasses should be duly marked by these officers and with such a system there could be joined the more recently introduced system of grading. The trained and efficient veterinary meat inspector is quite capable of grading meat carcasses as to quality, and the employment of one service for both the inspection of carcasses and organs and the grading of carcasses would lead to the immediate saving of the employment of a very expensive branch of Government activity in meat grading and marking.

It will be seen from the foregoing that a considerable amount of time would have to be spent by veterinary officers in meat inspection, and it may as well be boldly stated that it can only be satisfactorily carried out by whole-time officers. Indeed, meat inspection has become such a specialised branch of veterinary science that this practice is worthy of the whole time of a veterinary surgeon.

Turning to the milk side of the question, we have more cause for satisfaction in our practice at home. Compared with other countries British law concerning the control and inspection of the milk supply must be considered good, but the benefit of such law is considerably mitigated by the unsatisfactory manner in which it is observed in many parts of the country. In Scotland, again, we have to notice a superiority of administration, but in England it is sad to see so many and such large areas where milk inspection is either completely ignored or unsatisfactorily practised. In foreign countries milk inspection is on the whole only patchy, being the concern, more or less, of local authorities, and according to our essayist there would appear to be no supervision or co-ordination of such local authorities; but where the importance of the subject has been realised and an inspection service instituted, it is noteworthy that mostly whole-time veterinarians are the responsible executive officers. As our essayists inform us, the question of milk inspection wherever practised is inseparable from disease amongst cows, the most important of which is tuberculosis. All countries agree in prohibiting to some extent the use of obviously tuberculous cows for milk production and it is interesting to know that two foreign countries have taken action with regard to cows suffering from diarrhœa which may be inferred to be Johne's disease, whilst in one country contagious abortion is regarded as a dangerous condition in dairy cows. In such a review one could not fail to encounter the subject of milk pasteurisation. The treatment of milk by heat would appear to have reached this country from America, and so strongly is pasteurisation of milk recommended by most American authorities that there would appear to be a danger at present of British medical opinion being stampeded into the belief that pasteurisation is the only means by which the milk supply can be rendered "safe." As veterinarians we cannot agree with that view; we must admit that in many parts of the country the production of milk is so unsatisfactorily supervised and controlled that pasteurisation is necessary to enable the milk to be safely handled and distributed to the consumers. We must further admit that effective pasteurisation, whilst destroying the souring organisms will at the same time destroy or at least render less vivacious some pathogenic organisms, but we should claim that if milk inspection was everywhere practised as it should be, we could in a compara-

tively short time guarantee to the public a satisfactory and "safe" milk supply. The existing law would require to be amended and all local authorities should be made responsible for the regular and routine inspection of all dairy cows and all dairies both productive and distributive. In short, the whole subject of milk production and distribution should be put into the hands of veterinarians, who are the only men adequately trained for this work. All cowkeepers and dairymen, regardless of the extent of their business, should be licensed and it would be necessary to provide that such licences could be suspended by the licensing authority in case of misdemeanour, and at the same time a standard should be set for the quality of milk, as revealed by its quantitative and qualitative bacteriological examination, as well as a standard for its content of butter fat and other solids. Provision should be made for the compulsory pasteurisation of some milk and the effective labelling of such milk before it is distributed and at the same time power should be granted for the absolute prohibition for human food of other milk which does not comply with a certain minimum standard; and, above all, the law should be applied universally throughout the country.

It will be seen from the foregoing that what is contemplated is a very thorough revision of our practice of meat and milk inspection and to that I would add the control of contagious animal diseases. In these days, when the horse has ceased to be the principal member of the animal population, the control of contagious animal diseases may be regarded as merely one side of the great subject of the food supply. Cattle, sheep and pigs are only food walking about and being prepared for the production of either milk or meat, and I fail to see why the care of these animals whilst alive should be so definitely cut off from the question of the food supply as to be in the hands of a separate Government Department. It is probably a long view, but I can foresee the time when the whole of this country will be divided into regions for the supervision and control of the food supply in its entirety. The present conditions under which food is produced in one area to be transported to and consumed in another area under separate control will at long last be recognised as unsatisfactory and the whole question of the food supply will take its place as a subject of national importance. Veterinary surgeons will be employed as administrative and executive officers at all points, and there is room for only whole-time officers giving the whole of their ability and time to this subject.

Young graduates should join the food inspection service early in professional life, as some now do, when by training, guidance and experience under the senior officers in the various branches of veterinary public work, they will ultimately rise to the highest posts in the service. It is to be hoped that those responsible for the future welfare of the profession will realise the great possibilities awaiting veterinary practice in food inspection and take steps, not only to train veterinary surgeons to enable them to take their part in this great work, but to spare no effort in urging upon the Central Government and all governing bodies as at present constituted, that an efficient and satisfactory service for the inspection of meat and milk throughout the country can only be obtained by the appointment of an adequate staff of whole-time veterinary officers.

Mr. N. S. Barron (Reading) said that when he mentioned the words "state control" perhaps a number of those present would open their eyes a little wider and begin to wonder what he was going to say. That was just what he wanted them to do. During a recent visit to Germany, he was very fortunate in being able to witness the working of several systems of state control. The railways in Germany were state controlled, the postal service was state controlled, and two-thirds of the public transport in Berlin was also under the same system. The veterinary service was, apart from general practice, also state controlled.

They heard on the previous night Professor Hobday say that the veterinary schools received a very considerable grant from the Government. That was quite true. When a student was getting near to the time of qualifying, he considered first what line he was going to take up afterwards. He had open to him either general practice or state service. If he wished to go into the latter, he must take a further course of training, which consisted of a three months' special course in one of the recognised laboratories, and at the end of that time he must prepare a thesis. Only then was he regarded as an efficient person to take over a post in the public service. The speaker thought this was really a very excellent method of procedure.

With regard to slaughterhouses, he was fortunate in seeing at least two very up-to-date ones. They were very keen in Germany that their meat inspection service should be as efficient as it could possibly be, and the speaker thought if anybody was considering the introduction of a meat inspection service they could not do better than examine that now existent in Germany.

In Hamburg, he saw the great pig slaughterhouse recently put up, at enormous cost. The peculiar thing was that it was not in working order at that time, owing to financial difficulties. This building was really a model, which could be taken as an example of modern architecture.

However, efficiency was not sacrificed to appearance.

The pigs were assembled in small pens after they had been bought at market. They went right through the system from beginning to end, and in the last stage, one saw the carcasses being taken away in lorries after they had been inspected. They were laid out on tables and inspected by veterinary inspectors, aided by one or two experienced assistants, who missed little. The rejected material was removed down a chute into a trolley, and carried away for destruction.

The speaker regretted he could not lay before the Congress any evidence upon the systems of inspection of milk and such products, but he would like to ask one of the authors if he were willing to tell them a little about the Freibank system for the disposal of rejected material. He was not quite certain just what it was. He believed when material was rejected as being tuberculous or otherwise affected it could be used for animal fodder after having been passed through a process of sterilisation.

Major F. L. Gooch (Stamford) said he would like to preface what few remarks he had to make by stating what an encouraging sight it was to the older members of the profession to see their young graduates coming forward and taking part in those discussions and very often leading off. (Applause.) It said a lot not only for their educational but also for their scientific training.

He thought that two statements, one in the paper, and one that fell from the lips of the opener, placed that paper exactly in its right position. Colonel Dunlop Young, in his paper, said that England was far behind all countries in meat inspection, and Colonel Dixon emphasised the fact that to a large extent this was due to the senile condition of the law in this State.

Who had been responsible to a large extent for the condition in which they found themselves to-day as veterinary surgeons? The veterinary profession itself. When anything had come up in Parliament, they, *in the past*—and he said they (for he meant the Council of the Royal College of Veterinary Surgeons, who were as much responsible as the veterinary surgeons themselves)—had been very apathetic when anything had come up in Parliament which affected the legal aspect and position of the veterinary profession.

"I think we are ourselves very much to blame for the condition in which we find ourselves to-day in regard to meat inspection and other public appointments," declared Mr. Gooch. "When a regulation is issued which uses the word 'may,' one cannot interpret that either as compulsory or even in law to guide."

Proceeding, Mr. Gooch said many local authorities could interpret that as they liked, and did use it in many instances, and they took very little notice of any regulations sent forward by either the Ministry of Health or the Ministry of Agriculture.

There was one thing that was emphasised in the paper by Colonel Dunlop Young, and that was the very bad position in which the rural inspector was placed through the many duties he had to perform, and the many miles he had to travel in performing those duties, and in most districts butchers might kill at any time during the week. Colonel Dunlop Young had expressed the opinion that the time was ripe for an alteration in the law, and stated that medical officers of health were quite in favour of it. He thought when they got a really good medical officer of health, who stuck to his job and did not interfere with the veterinary surgeon, but worked in harmony with him, nine times in ten he was in favour of an alteration of the law.

He believed Colonel Dunlop Young said that in Denmark the veterinary officer not only was in charge of meat inspection, but he also had the full control of sanitation and cleanliness of the abattoir. The speaker thought that was a wrong conception. They had to realise that they as veterinary inspectors had to work very often with sanitary inspectors. While many sanitary inspectors were not qualified inspectors, a great many were good qualified men and knew their job, and he thought if they left the cleanliness of the abattoir to them and carried on the work as meat inspectors, there would be a mutual understanding between them and they would be able to carry out their duties under more satisfactory conditions.

The essayist stated that in Argentina, before an animal could enter a public abattoir, it must have a certificate. He wished that were the case in England when they got their emergency cases. It was frequently a very difficult matter in emergency cases, particularly where there was only a part-time inspector; probably he had finished his inspection, and late at night there came in from some farm an emergency case.

The butchers themselves were very thankful for the public regulations that came into force in 1926. It was taking a tremendous amount of responsibility off their shoulders. Before 1926 a farmer would send in a carcass for the butcher to dress, and he would inspect it and would not give the farmer very much for it; then the butcher got into serious trouble for not making enough money out of the carcass. Now that responsibility was on the shoulders of the veterinary inspector. The speaker very seldom allowed a carcass to be used for human food that had been slaughtered and presented

any conditions of disease, when he was unable to examine the viscera.

There was one remark he wished to make regarding Major Rabagliati's paper on milk. The essayist said that in England and Scotland, the registration of all farms where milk and butter were sold was compulsory. The speaker wished it was. He could tell Major Rabagliati of several districts where a great many people avoided the law by not registering, and the veterinary inspector, if he carried out his duties properly as milk inspector under the Order, could only enter those premises which were registered, and which were given to him by the local authorities. It might be different in Major Rabagliati's place, where he had a whole-time staff of assistants around him, but in many places where there was not a full-time officer appointed in rural areas and ordinary boroughs, they could only enter those places given as registered, and there were several that sold milk, butter and cheese that were never inspected because they were never registered.

In conclusion, Mr. Gooch thanked the authors for the amount of work they had put in in compiling the paper, which must have entailed an enormous amount of time. It had been a source of information to many of them, and although they might understand some of the regulations in their own country, they had now figures and facts from other countries which were very interesting to them and also educational.

Mr. W. Tweed (Sheffield) said he had enjoyed reading those papers, but unfortunately he had not had much experience of foreign countries except Switzerland.

In Switzerland the system of meat inspection was exceptionally good, simply because, first of all, they had concentrated slaughtering, and they had a professional and lay staff. They had a system whereby all emergency slaughtered animals must not be used for food until a veterinary surgeon had passed them as fit for food. He thought that until they got concentration of slaughtering in this country, their meat inspection would never be satisfactory. In the matter of public health, the veterinary service of this country would one of these days be seriously taken to task.

On reading Major-General Sir John Moore's pamphlet on the previous night, one could not help but appreciate the work of the veterinary surgeons in the war, and which the public realised they had done. During the outbreaks of foot-and-mouth and other diseases, the Ministry of Agriculture Veterinary Service stood the test and had done good work and good public work, but in this country in the public health service we had still our name to make.

In this country we had whole-time officers who had been working for some considerable time, and it was with great perseverance and courage that those men had been able to do as well as they had done. He could not help but admire and draw comparisons that he hoped would not be odious.

Let them take the County of Lanark, where Mr. Hugh Begg had been for many years the whole-time officer, and compare the amount of progress there with counties where they had not a whole-time officer. Let them also take Yorkshire and Derbyshire. The West Riding had got a man who was in touch with the rest of the county, and who made himself responsible for the work of diseased animals; in Derbyshire it was everybody's business and nobody's business, and nobody took the initiative.

So he could go on making comparisons in different cities. To aid progress in public health work, they must get whole-time men, in touch with the people who mattered, who were the committees of local authorities who were responsible for spending public money. The speaker thought that should be their aim, and they should, as a profession, omit to quarrel between part-time and whole-time men. Their minds should be greater than that, and as a profession they should support any measure which made more work for the profession, and encourage more men into the profession, so that in the different branches they would have men with sympathetic understanding of each other's duties, but who would be responsible and masters in their own particular spheres.

Major J. G. McGregor (Stirling) said he wished to supplement what Mr. Barron had mentioned with regard to the new slaughter-house for pigs in Hamburg. He had been privileged to make a tour of inspection of the administrative and inspection departments as well as of the slaughtering hall and storage accommodation for carcasses. He had been impressed by the splendid equipment of every department; but it was, alas, only too true that the city of Hamburg had built itself outside of the new edifice. The altered conditions in Germany had made it impossible for the city to occupy the new buildings.

Pens and facilities had been provided for slaughtering 2,000 pigs each day and between refrigerators and pickling vats 8,000 carcasses could be stored on the premises. Everything in connection with the place was of the latest design, stainless steel being extensively employed in the fittings and teak wood for vats, doors and tables. The accommodation provided for workers included baths and facilities for washing and drying their soiled clothes, as well as refreshment rooms, etc.

With regard to the system of meat inspection one was impressed by the degree of thoroughness with which pig carcasses were examined for trichinosis. In the inspection department,

apparatus was provided for twenty teams, each consisting of three men, engaged in this work. Two prepared the microscopical specimens, which the third examined on a screen by means of a combination of microscope and enlarging lantern. If working at maximum output, 60 persons would be employed looking for *Trichina spiralis* alone. It was out of the question for such a staff to be employed in this country.

What the speaker would like to know was what system of inspection for trichinosis was followed in Holland and Denmark, and what degree of inspection was made of the thousands of pig carcasses which came into this country each month from those countries. It was interesting to learn that all pork products imported into Germany were subjected to the same rigorous inspection as home produce, and that an appreciable number of cases of trichinosis were discovered in pork imported into Germany from America.

Considering the amount of pork products which were imported into Great Britain from America each year one wondered if we were running any risk by failing to make a more thorough inspection of imported bacon, etc.

In conclusion, the speaker said that an inspection of the new abattoir at Hamburg would amply repay anyone who was interested in the practice of meat inspection.

Mr. A. W. Stableforth (Research Institute in Animal Pathology, Camden Town), said he wanted to make a few more remarks about the thorough methods of Germany, which he had been able to appreciate during a three months' visit. He was not going to refer to meat inspection, but more especially to milk.

Major Rabagliati had given them a good opportunity of comparing systems in various countries in order that they might see exactly where this country was, and might come up with other countries or lead them, as the case might be.

It was not so much the regulations that were in force that were important; it was the spirit in which those regulations were carried out. Several speakers had referred to the apathy which existed in many counties.

One could not but be struck by the example of Germany; she had the essential regulations, and they were carried out in a thorough manner. General regulations were ordered in the normal way from the Reich, the central authority. They were circulated to the veterinary institutes of the provinces, whose duty it was to put them into operation. Each institute was well equipped and provided with a staff of whole-time officers. They employed a certain amount of part-time help, particularly in the clinical examination of cows.

The extent and frequency of clinical examination varied in the different provinces. It was general in the case of specially graded milks, which corresponded more or less to our Grade A. Tuberculin tests were not commonly done, but the routine included a search for tubercle bacilli in milk, tracheal mucus and other suspect material.

To give an example of the way in which the examination was carried out, in a bulletin or white paper recently issued from the central authority and which referred to the presence of mastitis secretion, provision was made firstly for the clinical examination of cows with the aid of the so-called rapid methods of diagnosis of udder disease—tests for reaction, amount of catalase or of chlorides. Secondly, for laboratory examination of bulk samples from one or more cows, or of suspected secretion. This was quite apart from tuberculosis. If bulk samples were found to be abnormal in cell content or otherwise, they separated out the cows into smaller groups, until they actually found the cow concerned. The point this speaker was coming to was that in Germany the veterinary officers had power to stop milk which showed any evidence of admixture of mastitis secretion. He did not mean that these regulations in Germany were carried out absolutely to the letter, but they had the power, and they frequently made use of it to stop inferior supplies.

With regard to tuberculosis, Major Rabagliati had said there was a compulsory system of slaughter. That more or less corresponded to their system here. But the system which was of much more importance was the voluntary system, in which any farmer, if he so wished, might have the whole of his animals dealt with by means of the so-called Ostertag's Method. The scheme in operation provided for clinical examination and examination of tracheal mucus, milk or other necessary material, in order to detect open cases. Tuberculin was seldom used. If the farmer liked to take up the scheme and to agree to the regulations put on him, he got compensation. They were trying to push this scheme as much as they could. Now financial troubles were worrying them, but they were pushing forward. As one went through Germany, one could not help being struck by the advertisement given to the scheme. In this country there were many who knew little about the way in which tuberculosis was spread. In Germany the position must be much the same, but they were educating the general public, not only by lectures but by posters which showed unmistakably the way in which tuberculosis was spread from cow to cow, or cow to calf.

Major R. Finch (Preston) said during the discussion on that paper he noticed that there had been a good deal of information given with regard to the systems of control and inspection that had been carried out by Germany and other foreign countries.

It had been his privilege and pleasure in years gone by to have had the opportunity of experiencing the organisation which was carried out in one of their own Colonies as far back as 1910. New Zealand's legislation with regard to meat seemed to him to be almost ideal in those days, and even to-day he had not yet seen anything comparable with it. He was very glad to find it described in the paper written by Colonel Dunlop Young. He could assure them all that the organisation there was entirely under the control of veterinarians. In this country carcasses coming from abroad were subject to very close supervision by the Ministry of Health, and in consequence, New Zealand had always exercised extraordinary care with regard to meat that was exported. It might interest them also to know that the method that was carried out locally in New Zealand was of stamping the carcasses before they were issued to the public.

With regard to milk legislation in that country, the speaker might also tell them that pasteurisation was general. Pasteurisation of the milk products, before farmers could take back from the cheese and butter factory the by-products in the way of skimmed milk and whey, was made compulsory, in order to prevent tuberculosis from being passed to pigs fed on that material. It seemed remarkable that such methods were practised in New Zealand so many years ago, while now in this country they could allow diseased milk to be used for food without any such preventative measure being adopted. He believed they still practised it in that country.

The systems of meat inspection in this country, as practised by the larger cities and municipalities, appeared to the speaker from his observation to be lacking in many respects; he could never quite understand how it was that, with very few exceptions, all bovine carcasses were not inspected. There were very few localities that saw that every bovine animal killed in their authority was inspected. It seemed to him so ridiculous that one animal should be inspected and another not. It seemed unfair to the butcher and certainly it was unsatisfactory to the consumer.

His experience abroad and in this country had been very considerable, and made all the difference to the methods adopted by him in this country. It was not for him to speak in any manner suggestive of pressing his particular system, but he could say quite definitely that it was possible and practicable for local authorities, if they had sufficient interest in this particular work, to have all carcasses inspected and stamped in their own locality. It was not beyond their means. The cost was not so tremendous, and it could be done notwithstanding that slaughtering might be carried out in a number of private slaughterhouses in that locality.

He wished to stress particularly that a system of examination was no system unless every bovine carcass was inspected. Without that, they had not got a system.

Mr. Harold Burrow (Birkenhead) said that during the discussion various points had arisen in his mind. First of all, he would like to express the view that meat inspection did not consist solely of inspection in slaughterhouses. The discussion that day seemed to have centred round that inspection alone. Even if all animals were inspected at the time of slaughter, meat inspection did not stop there. The meat might be quite fit when the carcass was passed, but in a short space of time it might be quite unfit for human food, as a result of bad storage, etc.

He would like to suggest that every place in which meat was sold or exposed for sale for human food should be licensed by the local authority. He did not mean registered, but subject to an annual licence which could be revoked if the keeper of the shop did not keep "up to scratch." "I can only say the condition under which meat is sold in this country to-day is nothing short of abominable," declared the speaker, "and we have had little assistance in effecting improvements through the Acts and Orders under which we work."

Proceeding, the speaker said he would like to refer again to the old bogey of the open shop window, which was now so well worn that the mere mention of it would suffice.

He did not think that a meat inspector should be asked to become a grader of meat, nor to be put into the ordinary butcher's position. It was, perhaps, a form of snobbery, but if he felt that if they took on the work of grading meat they would lower themselves in the eyes of the meat trade; and from a nicer, better point of view, he did not think they were qualified to be graders of meat. Butchers had experience of dressing and the purchase and sale of carcasses, and he thought if veterinarians stuck to their own particular responsibility, they would be much better off.

He did not want to cast any aspersions on sanitary inspectors. They were a fine body of men, and he thought they owed a lot to the veterinary profession for the stage at which they had arrived. But in small towns of 20,000 and 30,000 population, they would find that sanitary inspectors instead of skilled veterinarians carried out the duties of meat inspectors. In such a town, they had got a veterinary surgeon who worked for the local authority. He might be a part-time man, as he was in most cases. If that man was quite competent to do the diseases of animals work for that authority, the speaker considered that he should be quite com-

petent to pass the final judgment of meat killed in that town.

In a town the speaker knew, the principal veterinary surgeon was the local authority's inspector, and that veterinary surgeon would pass through the slaughterhouses morning after morning, and was never once asked to pass an opinion on carcasses, while the less competent sanitary inspector was doing the whole job.

From the speaker's small experience of them, sanitary inspectors were rather inclined to condemn too much. Those who had had experience of meat inspection knew it was much easier to condemn meat right and left than to pass it. He thought the art of being a meat inspector lay not in condemning right and left, but in knowing where to draw the line and saying, "That is fit for food: and this is not," and in having the confidence and knowledge to stand behind his conclusion. Any man could go into a slaughterhouse and cut down food right and left. He did not say all sanitary inspectors did that, but many of them, if they were not sure of a thing, instead of seeking expert advice, cut it down.

In this country, personally he would like to see all slaughtermen either paid employees of, or licensed by, the local authority. Where they were dealing with slaughtermen working under a master butcher, they had little power over them; and the speaker hoped the day would come when all slaughtermen would be licensed and controlled by local authorities.

The question of milk inspection was one which they had agreed was pretty hopeless in this country. He thought the point should be that the local authority ought to have the power either to reject or accept milk supplies from country areas. They in towns could not say "We will have your milk," and, "We will not have yours." They had to find some serious complaint (*e.g.*, tubercle infection) regarding the milk before they could go into county areas and exercise any sort of control. He thought if the authority was going to be responsible for the health of people in their area, they should have a say as to where they were going to receive their foodstuffs, among which was milk.

Another point which he would like some other speaker also to mention was the fact that in some of their slaughterhouses they had got to admit that some of their inspectors would, on occasion, remove some parts of an animal, such as an offal gland, which was tuberculous. This was actually what went on. He thought they should take a little firmer stand in that. If the cap fitted anybody there, he hoped they would put it on, and he emphasised that to take out a diseased gland from an animal's head or any other part of the body and pass the associated portion of the carcass was a most anomalous thing. If a gland could be removed and the rest of the area passed, then he thought they had no justification for condemning any carcasses on account of gland infection. He thought it was that slackness which prevailed in some areas which reduced their strength as meat inspectors.

Mr. T. Parker (Newcastle-upon-Tyne) congratulated the writers of the papers, not only because of the vastness of the subjects submitted to them but particularly for the concise and instructive manner in which they had dealt with them. In attempting to discuss profitably the subjects relative to other countries one encountered many difficulties, because, after all, whilst there might be some advantage in comparing the systems of inspection in other countries, or rather the organisation for the application of a system and standard, with that obtaining in this country, one was tempted, at first sight, to ask oneself the question: What is the value?

Having regard to the fact that pathology and bacteriology were the subjects which more or less determined what one ought to do in dealing with carcasses in slaughterhouses, it naturally followed that those subjects dictated the system of inspection and standard of judgment necessary in meat inspection. But the application—in any country—of a recognised system and standard was quite another matter and of extreme importance where consideration was being given to the question of the importation of meat from one country to another. For example, it was essential for the central authority of this country to know what was going on in other countries to enable them to determine whether or not to permit meat being imported, and, in any case, what form of legislation would be necessary to safeguard this country relative to the systems in other countries. With regard to this country, one of the most important questions appeared to be: How could we get an efficient system and standard applied, or in what way were local authorities to be enlightened as to the necessity?

If we looked back about 70 or 80 years, we found that in this country, long before the Public Health Act came into operation, there were local boards of health vested with certain powers, including the appointing of local inspectors. Some local authorities made use of powers under the Nuisances Removal Act, 1855, whilst others possessed local powers under certain Acts in the reign of William and Henry. Then the Town Improvement Clauses Act, 1847, conveyed certain powers and finally the Public Health Act, 1875, came into operation, by which the medical officer of health and inspector of nuisances were made responsible for the inspection of meat.

With reference to the veterinarian having no

legal status regarding meat inspection, a previous speaker stated that in this matter the veterinary profession had been apathetic. That, of course, was not quite accurate, because eleven years ago, while sitting as a member of the Departmental Committee on Meat Inspection, he saw quite clearly at that time that the only way in which the veterinary profession would come to be recognised would be by having the Public Health Acts altered so as to give the veterinary officer the same power now possessed by the medical officer for the purpose of meat and other food inspection. This view was brought before the Committee and finally embodied as one of the recommendations in the Departmental Committee's Report. Since the issue of the Departmental Committee's Report eleven years ago, he believed representation had been made by the Royal College of Veterinary Surgeons on several occasions. Such a change in the law could not, he thought, be long delayed. The complete application of a uniform system of meat inspection in this country could, perhaps, be best achieved by splitting the country up into counties and large towns and cities in each of which the inspection was placed under the charge of veterinary officers. Under the control of the veterinary officers would be, besides assistant veterinary officers, certificated lay inspectors, for the purpose of routine inspection. In counties where there already exists a Veterinary Department administering the Diseases of Animals Acts, Milk and Dairies Acts and Orders, such departments should be given the work of meat inspection and for this purpose the present lay staff could be placed under the direction of the veterinary officer of the district concerned. In this way much overlapping would cease. Such a system would, he felt sure, work well and prove successful and be more acceptable than splitting the country up into fewer areas, as appeared to be suggested in some quarters. Massed production, so far as slaughtering and dressing were concerned, were not conducive to efficient inspection. Inspection by local authorities on the lines he had suggested would, he believed, prove to be to the benefit of all concerned.

Sir Weldon Dalrymple-Champneys (Ministry of Health) expressed his appreciation of the way in which the President of the Association had welcomed him as the representative of the Ministry of Health. It was very gratifying to him to be the first delegate of the Ministry to attend their Conference. (Applause.)

He had always been extremely interested in all their work, and in recent years he had been more associated with their work than ever, especially in respect of one of the subjects they were discussing that day, namely, milk.

This was a subject in which he was particularly interested, and last year he had written a report for the Minister on bovine tuberculosis in man, with special reference to milk. He thought the papers which Colonel Dunlop Young and Major Rabagliati had given them that day were most interesting. He knew from personal experience, having had to write a good many reports for the Ministry at various times, what an enormous amount of labour must have been involved in getting out all those facts with regard to foreign countries, and verifying them.

He would like first of all to say, on behalf of his Department, that they welcomed and looked forward in the future to much more co-operation between the medical and the veterinary professions. (Applause.) There were all sorts of subjects of public health importance which could not possibly evolve on the right lines unless real and friendly co-operation existed between the two professions, and he thought perhaps that was realised by members of the public health service more than some of his audience imagined.

Often, as he went round the country, medical officers of health and sanitary inspectors expressed appreciation of the help given them by veterinary surgeons, and said how they looked forward to increase of such co-operation in their work.

They all realised that meat inspection at present was not satisfactory, and it was discussions like the present one which brought out suggestions and made for progress.

Colonel Dixon had referred to the training of sanitary inspectors for certificates as meat inspectors. A number of sanitary inspectors did get that qualification now, and his Department encouraged such qualification. Of course, the supervision of meat was different in this country from that in many other countries, and he had seen a good deal of this work in a number of European countries and in the Near East.

The policy of the Ministry had always been to encourage local authorities to work out their own methods and to exercise general supervision, rather than, as in many European countries, the standardisation of such work and central control.

One advantage of the English system was that they got developments along different lines, and in that way the best method was discovered and eventually established. The weakness of our system was, perhaps, that it did not give such close control as the foreign systems.

With regard to public abattoirs, he thought everybody agreed now that these were most desirable, and they would not get very great progress in meat inspection until the establishment of public abattoirs, replacing private slaughterhouses, became general. In his opinion, however, the provision of public abattoirs in

itself could not possibly solve the problem, and could only carry them a part of the way.

He had had the opportunity in one of the largest capitals of Europe of inspecting a public abattoir which served that capital, which had a very large population. They had erected it at enormous cost some years ago, and at the time the town was rather proud of it. The state of that abattoir would horrify any of his audience who had not already seen it. A great deal of money had been spent on it, but it was constructed on the wrong lines, and kept in a condition they would only expect to find in this country in some small private slaughterhouse. The mere provision of public abattoirs was therefore not sufficient.

He was interested to hear about the public abattoir at Hamburg, which he had not seen. But he had seen the one at Lyons, which was like the Crystal Palace, and one felt lost in it. On a slaughtering day, the animals and slaughtermen were just little black dots in that huge abattoir which, even if the town doubled in size, would be more than adequate for its needs.

He thought, as he had stated in the memorandum he wrote for the Ministry of Health on bovine tuberculosis, that what was most desirable, when possible, was the routine clinical examination of cattle. Tuberculin testing by itself, or the examination of milk samples, was not sufficient, and until this was supplemented by the routine clinical examination of cattle, they would not get to the bottom of the problems.

It was Colonel Dixon, he thought, who said that pasteurisation could not be the whole solution of the problem. He entirely agreed, but he did believe, and most of his profession in this country were coming to the same conclusion, that it was the one practicable means at the present moment of getting safe milk. Perhaps in the future they would be able to get all milk up to the standard of Grade A tuberculin tested. But still, they all knew that even with the most careful tuberculin testing of a herd it was impossible to guarantee that the tubercle bacillus would never be found in the milk from that herd. That was one reason why pasteurisation was so important.

With regard to contagious abortion, it had been his duty at the Ministry since 1929 to keep records of all cases of undulant fever in man occurring in this country, and he had given an account to the British Medical Association meeting the other day of the cases of which he had knowledge. He had now records of more than 80 undoubted cases of undulant fever occurring in this country, and in about 20 of those cases there was quite fairly good evidence of infection from milk. In the vast majority of those cases no other source of infection seemed possible.

There were cases with evidence of contact with infected animals, but they were very few indeed, in his series. Even supposing that his small series represented all the cases of undulant fever occurring in this country, he thought the public had some right to protection against a disease which had lasted on an average for twelve-and-a-half weeks, in some cases for more than seven-and-a-half months, and which had caused two deaths. The public had a certain right to claim protection from that infection, and when they bought certified or grade A (tuberculin tested) milk, they certainly did expect, and he thought they had some right to expect, protection from *Br. abortus* infection. They could not get that by any amount of tuberculin testing or clinical examination of cattle, and the only remedy at the present moment was pasteurisation.

Professor Share-Jones (Liverpool) said that he had been speaking at a number of conferences dealing with these and kindred problems during the past few weeks, and at every one, what had impressed him most as the predominant feature of the discussions was the state of absolute chaos in which those who were dealing with the animal industry were placed. It was futile for one type of council or one Government Department to blame another, for one profession to reproach another and so on. It was the governing legislation that was at fault. The law as applied to domestic animals was obsolete. The Act under which much of the work appertaining to the food producing species was carried out was over 50 years old. In that Act there was no specific mention of veterinary science or those concerned in its practice and application. The Act might have been quite appropriate 50 years ago—veterinary science, as represented by a licensed profession, was scarcely in existence—we got our Charter only in 1843, and 25 years was a brief period in the history of a profession's development. But veterinary science had since made great strides and the iniquity lay in the fact that legislation had not kept pace with it. In place of Acts of Parliament there had been too great a tendency to govern by Orders. Over 4,000 Orders had been issued by the various Government Departments since the Great War, and possibly the greatest culprits had been the Ministries of Health and Agriculture. Such Orders had never received the immediate sanction of the House of Commons.

What the animal industry needed most was the uprooting of the old and out of date Act of 1875 and a new Act dealing with the food producing species, their products and by-products —an Act which would indicate clearly what was required of Whitehall, the local authorities, local officials, and that general consuming public whom all those were supposed to serve.

He (Professor Share-Jones) hoped Sir W. Dalrymple Champneys, whose presence they all so highly appreciated—(applause)—would lend his support in an endeavour to secure this definite legislation. (Applause.)

The law as it existed to-day was a menace rather than a help to the animal industry and all those engaged in it. It revealed an astonishing lack of equity when dealing, for example, with the meat trader as compared with the milk producer. Many illustrations could be given; and law that was inequitable was sure to fail.

Another point which had struck him most forcibly that day was the manner in which most extreme measures of State control had been advocated. He had been astonished at the casual way in which centralisation of control and interference with the liberty of individuals had been urged, the model being taken from the Continent. If there was anything more Socialistic and Communistic in Russia than what had been advocated there, he had not heard of it. Carried to its limit, what might happen? Some time ago a well-known gentleman, Col. Hallick, announced a proposal to centralise the animal industry in Gloucestershire: in other words to convert Gloucestershire into a huge Chicago. It would have been a good thing for the financiers who were behind it, and it would doubtless have proved a good thing for a few fortunate individuals who would get the "fat jobs" under the scheme. But it would have meant the end of the meat trader as we understood him; the ruin of every small market town in the other agricultural parts of the country and the wiping out of much of our science. That was what centralisation and materialisation would do for animal husbandry.

As a candidate at the time for a great Parliamentry Division, the sole industry of which was animal husbandry, he felt it his duty to oppose the proposals, and this he did in an article to *The Times*. No more had been heard of the proposals, but the gravity of any such proposals could not well be over-estimated and they should not be regarded lightly owing to the immense effect they might have on the general practice of our science. They had seen what they had done in some other countries.

Cr. James B. Chadwick (representing the Corporation of Manchester) said that, as one who occupied an entirely non-professional engagement in connection with the municipality of Manchester, he was glad of that opportunity of joining in the discussion of that Conference on a subject in which he had been deeply interested for the last 35 years.

He had read with great interest the paper written by Colonel Dunlop Young, but he thought that the essayist rather underestimated the seriousness of the position in regard to the private slaughterhouses. Colonel Dunlop Young mentioned that there were some 2,000 private slaughterhouses in this country; the speaker thought 20,000 was nearer the mark.

There was one thing that had always occurred to him in connection with the inspection of slaughterhouses and meat by qualified veterinary surgeons, and that was that in the greater part of England a municipality was bound to regard the veterinary surgeon as an inspector of nuisances. There was nothing in the Act which allowed him to condemn meat, and it had always seemed to the speaker to be a strange thing that that should be so. A Committee on the Economic Slaughter of Animals was now sitting and considering the question of slaughterhouses, and he would like to suggest that they should, at their Association Council meeting, consider the question of giving evidence before that Committee from the point of view of the veterinary service. It seemed to him that it might be a long time before there was an amendment of the Public Health Act.

The speaker was one of those unfortunate persons, an administrative head of a corporation where slaughter was carried out by a corporation committee, and he would suggest that if every authority in this country which was responsible for the inspection of meat had recognised the veterinary service as much as Manchester, they would not have had sufficient colleges in which to train their students. (Hear, hear.)

In Manchester, they had 15 whole-time inspectors, six of whom were fully qualified veterinary surgeons. He did not think there was another city in the whole country which had anything like the same number of whole-time veterinary inspectors. (Applause.)

The Chairman, Mr. Arthur Gofton, Edinburgh, said he appreciated the contributions made by Sir Weldon Dalrymple Champneys, as representing the Ministry of Health, and Mr. Chadwick, of Manchester. This was the first occasion on which they had received a visit by an official representative of the Ministry of Health. If this visit was regarded as an experiment, he sincerely hoped the experiment would be repeated in future years. (Hear, hear.)

Major Rabagliati asked him (the Chairman) to reply to one or two points raised in the discussion, which would normally have been replied to by Colonel Dunlop Young had he been present. The first was with regard to the inspection for *Trichina spiralis* in this country and in Denmark. In Denmark the procedure followed was very much the same as in Germany, but in this country there was no equivalent inspection for Trichina. This was due to the fact that in this country they never ate pig meats in a semi-cooked or raw state, as was common in Denmark and Germany, and the cooking of the meats in this country removed

the necessity for routine inspection for Trichina.

Stated in general terms, the Freibank system was a system under which the carcasses of certain animals, particularly tuberculous animals which were in good condition, were passed for consumption subject to sterilisation before issue or sale. Actual lesions were removed before sterilisation. The sterilised meat was sold under strict regulations and under declaration for what it was. Generally there was a limitation of the quantity which might be purchased at one time by any purchaser in order to prevent abuse by selling the meat in a masked form, such as in meat pies. In the United States of America a similar system seemed to be followed. Occasionally consignments of tinned meats arrived in this country, the tins bearing a mark to the effect that the meat contents had been passed subject to sterilisation. These consignments were generally detected at the ports and the Imported Food Regulations of this country were sufficiently wide in their powers to enable officials to reject the consignments at the ports and to return them to the country of origin. In Great Britain there was nothing similar to the Freibank system.

In his paper Colonel Dunlop Young said that in 1892 an Act was passed in Scotland which conferred on local authorities the power to establish public abattoirs and, on so doing, to abolish private slaughterhouses where such existed in their districts. The date was incorrect. The power referred to by Colonel Dunlop Young was originally conferred on local authorities by an Act which was passed in 1852. The powers were renewed in the Act of 1892 to which Colonel Dunlop Young referred. It could be said without hesitation that the power given to local authorities in Scotland in 1852 to establish public abattoirs and to abolish private slaughterhouses had been a very material factor contributing to the progress which had been made in Scotland in relation to meat inspection. So far as the burghal local authorities in Scotland were concerned, with the exception of seven, all had established public abattoirs and had abolished private slaughterhouses within the area of their jurisdiction.

He wished to refer to another point which was not brought out very clearly in Colonel Dunlop Young's paper. The point was that in Scotland they had a standard of judgment for meat inspection laid down by law. The fact that this standard was laid down by law did not deprive the inspector of the right to exercise his discretion, but it did materially strengthen his hands by enabling him to say that the law prescribed the action which had to be taken, and it was his duty to carry out the law. In England, the position was not nearly so strong. It was true that the Ministry of Health had made recommendations which were in substance identical with the standard of judgment for meat inspection laid down by regulation in Scotland, but a recommendation of the Ministry, while undoubtedly of very great value, had not the force of law behind it.

THE REPLY

In replying, Major Rabagliati thanked the Chairman for having answered the two questions put on the subject of meat inspection.

He thought the point the Chairman had just brought out about the difference in Scotland having a law and England only having recommendations for the condemnation of meat was a very important one. He knew the difficulties that local meat inspectors were up against when they could only say that it was a recommendation, and they had not the power veterinary surgeons had in Scotland to say, "This is the law, and there can be no two ways about it."

He expressed his grateful thanks to those members of the profession, especially to those abroad in other countries, who had been kind in supplying information he had asked for. He wrote out the questions he wanted answered, and sent them to the people concerned. Several replied in English, and many sent voluminous explanations of local Acts in force in their various countries.

Colonel Dixon and many others had spoken to that perennial question of slaughterhouses. There was one type of slaughterhouse that had not been mentioned, and that was the private slaughterhouse on farms. In the speaker's district, they had a lot of slaughterhouses in farmyards; and could anything be more objectionable than a dairy close to a private slaughterhouse? Some of these slaughterhouses were bad, while some were quite good, but he thought that having the two on the same premises was most objectionable, and there was nothing more conducive to the spread of disease, particularly foot-and-mouth disease, if prevalent in a district.

Colonel Dixon also raised the question as to whether a veterinary officer should also be a grader of meat. It had been contradicted by another member, but the speaker felt that in a city such as Leeds, which Colonel Dixon represented, where the veterinary officers did so much meat inspection, they would be able in most cases to grade meat, and if they could, it would save paying comparatively large salaries to graders. This, however, was a difficult question, and one on which he would not like to give a definite opinion.

The question of pasteurisation had been brought up. Whether rightly or wrongly, he did not know, but he had left it out of his paper, chiefly because he knew it was such a controversial subject. But it would certainly have

been interesting to find out how much pasteurisation was done in other countries. They all knew how much was done in America and Canada, but how much pasteurisation was practised on the Continent he was not prepared to say. However, it was such a controversial subject that he thought it was wiser to leave it out.

Mr. Barron had given them a very interesting account of his visit to Germany, and of the bacon factory. That reminded him that in the West Riding they had one bacon factory run as a co-operative bacon factory by farmers, but it was not a very great success, through insufficient backing. It was run on the Danish system, and there was one Dane in charge of the factory. They carried it out on lines very similar to the practice in Denmark. The manager told him once that in Denmark there would be at least three veterinary surgeons, whole-time, inspecting in a factory of that size, whereas in the district there was not one. If anything suspicious was found, they had to place it on one side and call in the local meat inspector.

In this district, the meat inspector at one time did not even hold a meat inspector's certificate, although the speaker thought he had got one now. He was not saying anything against the inspector personally, but it seemed unsatisfactory that in a large bacon factory they had to call him in, and he (the meat inspector) had to make a special visit whenever he was sent for to see meat which the lay inspectors in this factory thought was unfit.

It just showed the difference between the system of meat inspection in this country and the system in practice on the Continent and many other foreign countries. He thought that, speaking generally, it had been well brought out that the system of meat inspection in this country was far behind that in most others.

This country's system of milk inspection, so far as the veterinary profession was concerned, was by no means so far behind, with the exception, perhaps, of America and Canada, and perhaps Germany. Compared to other countries, this country was fairly well holding its own. No doubt there was ample room for improvement, but it did not compare so badly in the question of milk inspection.

Mr. Gooch raised the point that he thought their profession was responsible for the veterinarian being kept out of so much of the limelight in the public health legislature. The speaker thought that the profession in the past had been too much prone to hide its light under a bushel, and had not done sufficient advertising. One could only hope that in the future that would be obviated; and the change that had taken place in the last ten years showed they were making themselves much better known to the general public.

In Yorkshire, they had had the greatest possible help from medical officers. These medical officers had put forward to certain Commissions discussing the appointment of local government officers very strong recommendations that the veterinarians should have the same powers as the medical officer of health himself. The speaker knew it was their real and genuine wish that this should be so. (Applause.)

Mr. Gooch also raised the question about registration in this country. He said registration was not compulsory. The speaker said it was compulsory according to law, but he knew there was an enormous number of farms producing milk, where neither the farm nor the producer was registered. In one of the speaker's districts, since they started the veterinary inspection of cows, members of his staff had visited about 600 farms which were selling milk, or making butter, and local officials had only registered some 250 of them. They had been instrumental in finding hundreds of farms in the West Riding which were never registered before, and where the local councils had not taken the trouble to find out if they were producing milk or butter.

Major McGregor gave them some information of his visit abroad, and showed what the veterinary profession was doing. If anyone present could see Colonel Dunlop Young's system of meat inspection in London, and visit his offices, with the most up-to-date construction, it would show what a veterinarian in charge could do. (Hear, hear.)

He was interested in Mr. Stableforth's visit to Germany. Mr. Stableforth rightly drew their attention to the fact that they might have regulations, but it did not mean they were being carried out. It was not so much what the regulations were as the spirit and the manner in which they were carried out that mattered.

Sir Weldon Dalrymple Champneys mentioned the question of the co-operation of the medical and veterinary professions, and he was very glad of it.

In conclusion, Major Rabagliati, on behalf of Colonel Dunlop Young and himself, thanked the Congress for the kind way in which they had received that paper, and for their very helpful criticisms.

The Chairman thanked Cr. Chadwick for his contribution to the discussion, and said he would see that the suggestion he made of the Association giving evidence before the Committee on the Economic Slaughter of Animals was raised at the meeting of the Council that afternoon.

This concluded the discussion.

Snyman reports thirteen abortions attributed to *Vibrio fœtus* in a herd of 160 dairy animals in South Africa. All animals in the herd were negative to routine agglutination test for *Br. abortus* infection.

SHORT NOTES ON THE USE OF VARIOUS THERAPEUTIC PRODUCTS*

J. F. D. TUTT, M.R.C.V.S.
Winchester

In the short time at my disposal, I hope that the following clinical remarks and therapeutic suggestions will interest you.

I should like first of all to refer to a condition that we all so frequently have to deal with in general country practice—the removal of the retained placental membranes in the cow. As retention is a sure indication of some abnormal condition existing in the uterus, it follows that the sooner that these membranes are removed, and uterine involution hastened, the less risk there is of subsequent sterility or delayed conception. I think you will agree that there are many instances in which manual attempts at removal are neither complete nor satisfactory, and too early attempts are often harmful in those cases where parturition has occurred before the expected date. It is in connection with such cases that I should like to mention the value of colloidal magnesium hydroxide, and I have found that by injecting two pints of a 3 per cent. solution into the uterus, uterine contraction is induced, and placental expulsion follows. It should be injected cold. If after attempts at manual removal any portions are left in the uterus, such as in the extreme ends of the uterine cornua, these are either expelled or become autolysed by tryptic fermentation, the products then formed becoming absorbed without any untoward effects. This method of treatment will be found of especial value in those cases where the os is practically closed and it is not possible to insert the hand. It is also of value in cases of pyometra and suppurative conditions, as it renders the tissues alkaline and converts the peptic process of autolysis into a tryptic one. In cases where it is desired that the medicament should be retained in the uterus, such as in chronic metritis in mares, it should be injected slightly warmed. There is no need to siphon it out, as with other injections used, as it is a very rapid excitant of uterine contraction. I cannot speak too highly of it in assisting resolution of pathological uterine changes. I drew attention to this preparation in the *Veterinary Record* for last year, and in the enquiries that I received from practitioners I was rather surprised to find that the majority stated that they never now attempted manual removal of the retained placental membranes in the cow, but preferred to rely on pessaries and ordinary injections and allow them literally to "rot away." I am afraid I cannot agree with this contention, and should like your views on the matter. In conclusion, in this connection, let me make a perhaps superfluous remark in stating that you must make certain of injecting this preparation into the uterus: it is no use injecting it into the vagina and thinking it will gravitate into the uterus.

No doubt all of you have your own favourite local anæsthetic, as there is a large selection from which to choose. I should like to mention mine, which has given excellent results, and I can vouch for its efficacy from personal experience at the hands of my dentist. It is sold under the name of "Murocaine" and, like most of the local anæsthetics on the market, contains cocaine hydrochloride and adrenalin chloride. The proportion of the former in two ounces of the solution is 6·6 grains.

The advantages possessed by this over similar preparations, are its remarkable freedom from toxic effects and the rapidity with which anæsthesia is induced—this is usually present within two to three minutes of injection and will persist for 30 minutes to an hour, depending on the amount used. I have had no untoward results even after large injections and use it in all cases where a local anæsthetic will suffice. Generally speaking, 5 c.c. will anæsthetise a coronet and from 6 to 10 c.c. the back tendons. It is admirable for infiltration and nerve blocking. Those of you who specialise in canine dentistry will find it of value either in single or multiple extraction of teeth. You can induce anæsthesia which will enable the painless extraction of the teeth on the side injected, by injecting 1 c.c. into the infra-orbital foramen. Time will not allow me on this occasion to go fully into this subject, but I should like to draw your attention to a point in the upper jaw where you can painlessly insert a needle to a depth of $\frac{7}{8}$ in. If you pull the upper lip down and away from the necks of the teeth, you will notice a line of demarcation between the lip and the gum (or the cheek and the gum), namely, the muco-buccal fold. This is best described as a faint bluish line, which, once seen, is never forgotten. It is seen better if the gum is first painted with tincture of iodine.

There is one more clinical hint I should like to give you. In removing tartar accumulations on the dog's teeth, try dental excavators. I think you will find them far better than the scalers and chisels advertised, which are clumsy and lacerate the gum, especially if the patient is at all a fractious one.

There is no risk in using quite large doses of "Murocaine," but let me remind you that the success of a local anæsthetic depends not so much on the dose as on the way you inject

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it. First of all, inject it slowly, as if you inject it quickly it cannot be absorbed quickly enough, with the result that undue rupture or distension of the tissues occurs. Secondly, use a fine needle and a syringe with which you can inject under pressure. You will find that one of ⅞ in. No. 27 gauge, as made by Messrs. Cottrell, and fitted to an all-metal dental syringe, will suffice for most practical purposes. Thirdly, inject the anæsthetic as you gradually push the needle in, and finally, before withdrawal, give the syringe a twist and gradually withdraw the needle, so as to prevent undue escape of the injected fluid and breaking down of tissue, which tends to lead to sloughing. This applies particularly to tooth extraction.

You have no doubt seen frequent references to the value of an arsenical preparation sold under the name of "Aricyl," in connection with the treatment of follicular mange in the dog. I should like to recommend you to try it in cases of strongyle and sclerostome infections in the horse. I have found that the intravenous injection into the jugular of amounts varying from 5 c.c. in the case of ponies and hackneys, to 10 c.c. in the case of hunters and larger horses, has often been attended with most satisfactory results when other remedies have failed. The "Aricyl" should be warmed before use, by standing the ampoule in warm water, and the injections should be repeated at intervals of three to four days.

To check the efficacy of the treatment, the fæces should be examined at the start, and an estimate arrived at as to the number of parasites and ova present in one ounce of fæces. These should be re-examined after four or five injections and if there is no reduction the injections should be continued. You may find it necessary in some cases to supplement this line of treatment with other remedies administered either through the stomach pump, or as a drench, or in the food. I have found oil of chenopodium the most reliable remedy in the horse.

Coming to cases of impaction of the bowel in the horse, for some time past I have discarded the use of linseed oil in favour of large and frequently repeated doses of liquid medicinal paraffin, and I have had no occasion to regret it, for I am satisfied that with its use I have saved horses which otherwise I should have lost.

The chief advantage of this preparation over linseed oil is the fact that when large doses of linseed oil have been given and purgation ultimately starts, it is not always easy to control. There is no such risk with paraffin. I start by giving anything from half to one gallon, and repeat every three or four hours, as the case demands. In a case in a well-known steeplechaser last January, that had been ill for 48 hours before professional advice was sought, I gave during treatment close on four gallons and secured a good recovery. In this case the underlying colon was so tightly impacted and displaced that I could only get my hand into the rectum just beyond my wrist. In conjunction with this treatment, give stimulants, and as a hypodermic remedy use pilocarpine. It is far safer than either eserine or arecoline, which I consider are contra-indicated in cases where severe impaction exists. You will also find pilocarpine of value in cases of choking both in the horse and the cow.

Some of you may not be satisfied with the results you have had with pituitrin, in inducing labour in the bitch. If so, may I ask you to give a trial to "Pitocin."

Pitocin has a distinct advantage over pituitrin in that it contains the oxytocic principle of the posterior lobe only, does not raise the blood pressure, and is therefore valuable in those cases where eclampsia is present. The obstetrical dose is approximately ½ to 1 c.c. injected intramuscularly every two hours, but start as with pituitrin with a small dose. Remember also those conditions, as also with pituitrin, where the induction of labour will only complicate the case. Some of you may have tried ovarian residue in inducing labour. I have not done so, and should like those of you who have to state your views, as in spite of the favourable reports published, I am informed by the physiological department of one of the largest distributors that there is no evidence that it is of any value in inducing labour, and this opinion has been confirmed by medical friends. If you prefer pituitrin, you will find that a very reliable preparation is sold under the name of "Hypophysin." Have you noticed what a good action you get with pituitrin in inducing labour in the cat?

Theelin, a preparation of the ovarian follicular hormone, has been found of value in inducing menstruation in women, and it has been recommended for inducing œstrum in the bitch. I have not tried it on the bitch, but I did induce œstrum in a cow after two injections of 5 c.c. given at an interval of three days. This cow was suffering from the so-called "functional sterility," the ovaries having remained static for six months.

The dose advised in human work is 1 or 2 c.c. intramuscularly every day for a week, before the expected period is due. Pessaries containing this preparation, inserted into the vagina, are stated to have the same effect. If any of you have tried this preparation I should like to have your reports.

In conclusion, I should like to refer to a chemico-therapeutic product well known to you, and sold under the name of S.U.P.36. This belongs to the group of substances known as

symmetrical ureas. It acts as a conductor, and for its action depends on the liberation of two positively charged conductor hydrogen atoms from the two hydroxyl groups in the eight position of the naphthalene rings. It is indicated in all acute conditions where an immediate effect is required. In short, it is an antidote in cases of intoxication occasioned by a drug which functions in virtue of an active halogen, oxygen, sulphur or nitrogen atom. You will find it of value in all cases of respiratory disease in the domestic animals, and I have had success with it in the treatment of white scour in calves. In these cases, I advise 5 to 10 c.c. given intramuscularly every 48 hours.

It is stated to be best in acute staphylococcic infections rather than streptococcic. No doubt some of you have used it in canine distemper.

I have covered a fairly wide field in this paper, and if I have not been lucid enough I hope I shall be able to answer the questions you may wish to ask me.

Discussion

Mr. G. N. Gould, junr., in opening the discussion, said:—As regards the preparations mentioned, my experiences are as follows:—

Colloidal Magnesium Hydroxide.—I have used this treatment in a few cases following a conversation with Mr. Tutt and found it very beneficial. I know of no actual colloidal preparation but have used "milk of magnesia." Can Mr. Tutt tell us of a colloidal preparation? To what is its effect in inducing uterine contractions due? Is it due to the primary irritation as a result of the injection of a cold strongly alkaline solution? How does the change from an acid to an alkaline process of autolysis exert a benficial effect on an infected uterus? I agree with Mr. Tutt that retention of the membranes is an indication of placentitis. Can he explain why it is that in early cases of abortion and in very late cases the membranes are rarely retained? As regards manual removal, in my opinion this should not be lightly undertaken. I always attempt early removal in cases in which the uterine wall is paretic, but when atony does not exist I prefer to delay manual interference. A great deal of harm can be done to the uterine mucosa by undue interference. How long after the injection are expulsive efforts noticed? Concerning the injection, I always make it a practice to twist the free membranes up as for manual extraction and then inject the fluid to make quite certain it will permeate between the chorion and the uterus.

Murocaine.—I am giving this a trial, but my preference is for pure unadulterated cocaine hydrochloride. I have tried dozens of local anæsthetics and have come to the conclusion that that is the best. The addition of adrenalin is not always an asset in any local anæsthetic. In my opinion it increases the tendency to delayed healing and to sloughing at the seat of injection. I find with all local anæsthetics it is an asset to warm the solution slightly prior to use. The anæsthetic line is a very useful "tip" and facilitates extraction of teeth by local anæsthesia.

Aricyl.—I have a case of sclerostomiasis under this treatment at the moment, but can give no actual results. I have used this preparation in canine practice, but find its effects no more pronounced than medication by liquor arsenicalis which is very much cheaper.

Liquid Paraffin.—This is, I consider, a most useful drug in all cases of stasis of the bowels in all animals. I have used it with success over a number of years in cattle in cases of stoppage and impaction, giving subcutaneous injections of strychnine to restore tone to the paretic bowel. In these cases the administration of saline purgatives is, in my view, contra-indicated. The administration of a drastic purgative in cases of impaction is always attended with risk of rupture from the action of an irresistible force on an immovable body. I agree that pilocarpine is the safest drastic purgative.

Pitocin.—I have used this in two cases with completely satisfactory results. I am not prepared at the moment to give an opinion as to its relative merits compared with pituitrin. Ovarian residue has proved successful in my hands in stimulating labour in cases of inertia and in producing the same effect in cases of delayed whelping. Its action is to stimulate the secretion of normal pituitary extract and, in addition, it has the effect of inducing dilation of the cervix and vagina which is the normal accompaniment of whelping. I do not think pituitrin is considered to be of any value in inducing labour; its effect is to stimulate it and increase the tone of the uterine muscles. I consider small doses repeated at frequent intervals the best method of administration.

I always make a point of examining thoroughly prior to the use of pituitrin, to ensure that the fœtus is correctly presented and is of normal size, etc., with no obstruction to natural delivery provided uterine inertia is overcome. In cases of "unmovable" puppies there is a big risk of uterine rupture following the use of pituitrin.

Theelin.—I have used this in the last few days on some cattle with functional sterility. I shall be glad if Mr. Tutt will explain exactly what it is. Up to the moment I can give no opinion of its value. I have used contramine in combination with surgical treatment in about 100 cases of sterility, with good results.

S.U.P. 36.—I used this a great deal prior to the advent of hyperimmune distemper serum in early cases of distemper, with good results. It is, I believe, contra-indicated other than in early cases. Would Mr. Tutt explain what its effect is and what is its chemical composition?

Professor B. Gorton inquired whether the magnesium hydroxide treatment advocated consisted of an actual colloidal preparation or whether it was a "make-believe."

Mr. Tutt replied that the article referred to was manufactured by a reputable drug house.

The Hon. Secretary said that he used milk of magnesia in certain cases.

Mr. Tutt observed that the colloidal preparations worked out at about 2s. 6d. per litre, whereupon Professor Gorton commented that he could make enough milk of magnesia to treat all the animals in Hampshire for 2s. 6d. (Laughter.)

Mr. Tutt replied that he had found nothing to equal the preparation he had referred to in cases of retained membranes and he judged by practical results.

On the subject of scaling dogs' teeth, Major Wood remarked that if a tooth were loose it was better out.

Mr. Tutt said that the great advantage of the instrument referred to by him was that one could get to the root of the tooth without lacerating the gum.

After replying in detail to points raised by Mr. Gould on his paper, Mr. Tutt concluded by saying that they had to combine the old methods with the new. Some of the old methods gave far better results than the new. They could not treat every case of sterility on the same lines and each case had to be treated on its own merits, just as colic was treated in horses.

Mr. Gould mentioned that he used strychnine frequently in cattle practice. He had never experienced any untoward effects.

Mr. Tutt observed that once he injected strychnine and thought that the cow would be dead in the morning, but it revived when he gave it morphia! Continuing, this speaker said that he had not found calcium gluconate entirely satisfactory in the treatment of milk fever and he did not think it had been proved that calcium deficiency caused milk fever.

The Hon. Secretary commented that he had used nothing else for the last two years. One had to take sterile precautions and in his opinion it was best to make it up on the spot and give the injection at blood heat. It appeared to be absorbed almost as rapidly as injected, in most cases. He had used it in a very large number of cases and the cow was usually up in six to twelve hours, even in those of a serious nature.

Mr. Gould also gave details of feeding experiments carried out in a herd of Jersey cattle previously seriously troubled by milk fever in which this disease had been reduced to two cases in 18 months instead of 7 to 12 a year, as a result. Controls had been used, which appeared to prove the efficacy of the mineral product given. He intended to publish the details of the experiment in the *Record*.

Mr. Tutt said that there was no guarantee that the cows absorbed the calcium with their diet. He thought that the deficiency was due to lack of vitamin D. "We are hearing more about this subject now than we shall in 20 years' time," he added.

Mr. Gould failed to see why there should be a deficiency of vitamin D in cattle at pasture, with long exposure to sunlight and plenty of green food. Cows became deficient in calcium, which passed out with the milk and was utilised by the structure of the fœtus; at the time of calving, with a sudden flushing of milk to the udder, there was an acute hypocalcæmic condition of the blood, which resulted in milk fever. If the animals were given calcium in an absorbable form it enabled them to prevent milk fever.

Mr. Tutt inquired why some cows failed to get up after the treatment advocated, Mr. Gould replying that his cases rose all right.

Mr. Pack said that he used to inflate the udder with peroxide of hydrogen and there was no mastitis afterwards.

Mr. Gould remarked that some owners objected to inflation of the udder; they stated that a cow never milked so well after. Some farmers, however, kept pumps for the purpose. If, however, there was a treatment available which gave satisfactory results and was more scientific in application and not available to the farmer himself it was, in his opinion, advisable to use it.

Mr. Pack observed that cases of milk fever were far more severe 50 years ago than they were to-day and far more animals died then. He had seen them die in two or three hours.

ACUTE SEPTIC METRITIS IN THE COW*

J. B. WHITE, M.R.C.V.S.
Salisbury

I have chosen "Acute Septic Metritis in the Cow" as the subject of my remarks because, although a somewhat commonplace disease, it is a very serious one, which annually is the cause of death of a great number of cows, to say nothing of those it renders useless for further breeding.

The most common cause is, I think, retention of the fœtal membranes, aggravated in many cases by clumsy and forcible methods of removal, which bruise and tear the cotyledons, thereby opening fresh points for septic infection.

Removal of the membranes by direct traction nearly always results in considerable portions of membrane being left adherent to the cotyledons, where it remains and putrifies. With the bulk of the cleansing removed, there is nothing to keep the *os uteri* open, and so it closes, shutting in the remnants and preventing to a great extent any chance of drainage.

I have often been astonished, on farms where no attempt is made to remove the cleansing, how little acute metritis they get; and feel sure that rough and indiscreet handling of the cleansing is a big factor in its causation.

This retention of membranes is, in a large percentage of cases, due to infection with contagious abortion, even when the cow carries her calf to full term, and so in these cases the cow calves down with an unhealthy uterus—which is more easily infected than would be the case with a healthy cow. Difficulties in parturition also predispose to metritis, by reason of the bruising which occurs, or by direct infection during the removal of a putrid fœtus.

Metritis may also arise when the uterus does not contract in the normal way, as often occurs after a twin of calves, thus leaving it a receptacle for putrid fluids, which cannot escape.

The bacteria involved have not, as far as I know, ever been properly investigated, but streptococci, staphylococci, and *Bacillus coli* are known to be present. That the predominant organism varies from case to case is, I think, undoubted, as when examining a number of cases, one quite definitely sees different types of putrefaction. Some cause gas formation, others considerable necrosis of the cotyledons, the differences being due, in my opinion, to a different causal organism in the same way that

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one notices the discharge in mammitis varies from case to case.

Symptoms usually appear at about the third to fifth day after calving; but may be as long delayed as the eighth or ninth day. The symptoms are those of a toxæmia or septicæmia. Dulness, lack of appetite, cessation of rumination and drop in the milk yield are the first signs. The temperature varies somewhat, but is usually high, together with a quick, hard pulse, and hurried, but rather shallow respiration. The cow is loth to move, and may paddle with the hind legs slightly, owing to pain in the joints.

As the disease progresses there is increasing dulness and weakness, black or very dark fœtid diarrhœa commences, and the eyes appear sunken.

The cow grunts at nearly every breath, and any palpation of the right flank causes obvious pain.

A stinking discharge is present, though not always very obvious—greyish pink at first, turning later to coffee colour.

Examination reveals a hot, dry vagina and uterus, quite likely containing some cleansing, while the mucous membrane throughout bleeds easily. Straining may or may not occur, but is always a serious complication.

The prognosis should always be very guarded, as the power of resistance in cows seems to vary enormously; and whereas some will go on for days and yet survive, others very soon collapse.

A very serious complication is the development of a hard, inflammatory swelling of the vagina or vulva, almost livid in colour, and oozing drops of yellow serum. This swelling will in 24 hours reach the size of a loaf, distorting the vulva and pushing the anus out of place. To me it seems like a type of malignant œdema, and so far all my cases have proved fatal. Septic pneumonia and pus abscesses in the muscular system are other complications which arise at times.

Treatment is both general and local, and in dealing with these cases I think it very advisable to sum up the cow's condition generally before commencing any local treatment.

If the case is not too serious, I believe in removing any cleansing present, provided it comes away fairly easily, and then make free use of antiseptics, such as iodoform, boracic or salol, preferably dry in gelatine capsules, or in pessary form, giving as much as ʒii-iv iodoform, and ʒi boracic at one time.

By the free use of antiseptics I think one can at least cut down bacterial multiplication, and so limit their advance, and the quantities of toxin produced. When the case is more serious, and you find the cow stands as soon as you handle her, while the uterine mucous membrane bleeds easily, I deem it far better to confine oneself entirely to the use of antiseptics rather than risk prolonged straining by removing the cleansing, or washing out. In addition, by removing it, you provide fresh surfaces for toxic absorption. I do not think it good practice at any time to remove fœtal membranes unless you can "make a clean job" of it; preferring rather to leave them a day or two longer, though it is not always easy to get one's client to allow this.

In all these operations, I cannot emphasise too much the value of gentle handling, combined with efficient lubrication of the hand and arm, and for this I find soap emulsions the most useful.

When the *os uteri* is nearly closed, although local treatment is severely hampered, one can usually insert pessaries.

Should any cleansing be through the os, it is sometimes possible gently to ease it away; if it is obstinate be careful not to break the string, but leave it and try again in a day or two.

Personally, I do not favour irrigation, as I think it very difficult to get away all the fluid one injects; and fluid left is simply a medium for bacterial multiplication. Further, if efficient syphonage is not carried out, the cow strains to get rid of the fluid, which is certainly not good for her. Occasionally, where the uterus does not contract properly, a tube is useful to drain off the fluid which collects; and this may be used even when the os is nearly closed.

If irrigation is practised, warm solutions of the hypochlorites, chinosol, or warm saline are the best agents, being nearly non-irritant — which cannot be said for the cresol antiseptics; in addition to which, the latter form a thick mucilage with uterine fluids, which must lower their antiseptic value.

The tail and buttocks should be washed down daily, as it renders the cow more comfortable, and is considerably more hygienic.

Coming to general treatment: if possible have your cow in a clean loose box, and tempt with small quantities of a variety of good food, specially greenstuff. A cow responds more than many people imagine to small details of nursing, and attention to her general comfort is important.

Medicinally, I believe stimulants to be the principal item; and of these the alcoholic stimulants are, in my experience, the best, their drawback being their expense.

In spite of this, I think that in many cases the extra cost is justified by the better results one obtains, and spts. æther nit., salicylate of soda, and nux vomica make a useful combination.

Failing that, for less serious cases, I use carbonate of ammonia, nux vomica, and fairly large doses of sodii bicarb., adding salicylate

of soda where high temperature is present. Carbonate of ammonia, creta præp., salicylate of soda, and gentian, I have found useful in a few cases, where diarrhœa is present, omitting the nux vomica which, I think, rather increases it.

When straining is present, chloral is quite useful, and a dose may be given after attention to the uterus, when some straining is likely to take place. It is one of the few sedatives I find effective, which does not upset the appetite.

Blankets wrung out in very hot water, and applied to the croup, with an old macintosh over the top, will keep hot for some time, and will often stop quite obstinate straining if used with thoroughness.

Subcutaneous injections of camphorated oil and æther are of some service as a stimulant, the æther and camphor being slowly absorbed, thus giving a stimulant action of considerable duration.

Acute metritis is too sudden for vaccine therapy to be of much service, as the cow is either dead or on the road to recovery before she could manufacture antibodies in response to vaccine injections.

As with mammitis, metritis is not due to one specific organism, and so any vaccine made must be a stock vaccine, containing several organisms in an attempt to include the right one. Such vaccines are not usually very successful.

That ends my few remarks which, I fear, contain nothing very new, or original; but which will, I hope, be sufficient to give rise to a healthy discussion.

Discussion

Major J. S. Wood, in congratulating Mr. White on his paper, said that the latter had covered the ground so well that one could only agree with what he had said. He (Major Wood) held to the view that prevention was better than cure. If the membranes were left there was a fruity discharge, but the animal did not die unless one attempted to remove them. If the cases were handled, it was advisable to smear one's arm with vaseline, otherwise a nasty irritation was produced.

Mr. H. C. Rockett observed that it was difficult, after travelling a long distance, to tell the client that it was best to leave the membranes. If there were a reasonable chance of getting them away he did so.

A general discussion on the advisability or otherwise of removing the membranes ensued.

Mr. J. F. D. Tutt said that if any difficulty was experienced in manual removal it was better to defer it, otherwise more harm than good would be done. He related some tests he had carried out to prove the incidence of abortion infection in cases of retained membranes.

Mr. Geo. N. Gould (Hon. Secretary) remarked that he preferred to use pessaries (made up in gelatine capsules) of iodoform, boracic acid and thymol in powder form. They could be emptied out if desired or inserted as they were. He considered cocoa-butter pessaries of little antiseptic value.

OBSERVATIONS ON THE TUBERCULOSIS ORDER*

E. S. MARTIN, M.R.C.V.S.,
Christchurch

The subject I have chosen to speak briefly upon at this meeting, might at first glance appear to be of interest only to those of you who are Veterinary Inspectors under the Diseases of Animals Acts. It is, however, incumbent upon all general practitioners to make themselves familiar with the Order and to report cases they meet with, just as it is the law for cow-keepers to report cases or suspected cases—a fact of which many profess to be entirely ignorant. This I consider might well be remedied by a plain instruction from the Farmers' Union; yet it is a common occurrence to see in the knackers' yards tuberculous bovine carcasses that certainly have not arrived there on account of this Order. The figures that are so carefully collected for Returns by the Authorities concerned are therefore not a true indication of the incidence of clinical cases of this disease in bovines.

In the six years or so that this Order has been in force I have had no case reported to me, in my capacity as a part-time veterinary inspector of the local authority, by any veterinary surgeon.

It is a remarkably difficult and complicated matter to deal with cases in which the carcasses are assumed to be partly fit for human consumption, *i.e.*, not advanced. In the first place, butchers refuse to have them in their slaughter-houses or rather to offer any price for them, and if and when that difficulty is overcome, one has to arrange to meet a M.O.H. or meat inspector before proceeding. It would be better that the Order should say that no tuberculous carcass can be partly fit for human consumption.

The Order does not say what should be done with the carcass of a beast taken to a knacker's yard under the Order, if it is found on *post-mortem* to be not advanced or free from tuberculosis.

Practically all the cases that are reported are in such a condition that they could not possibly be considered as fit or partly fit for people in these enlightened days to eat.

The co-operation and presence of the police appears to be somewhat detrimental to the universal compliance with the provisions of the Order, because certain individuals do not like a policeman to be seen about their premises nor the fact that they possess such a thing as a tuberculous cow to be known. The administration of the Order by Police areas likewise involves overlapping of veterinary inspectors and

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consequent avoidance of the reporting of cases. Each inspector would otherwise be able to deal with his own clients' cases no matter in what district.

MARKETS, FAIRS AND SALES

The Order says that any cow which is, or is *suspected* by a veterinary inspector to be affected must not be exposed, etc. Yet if such an animal is rejected and returned to a district outside the inspector's area it may be examined by the local veterinary inspector and declared not to come within the terms of the Order. The owner promptly reports a blunder on the part of the market inspector and complains of loss of sale, expense of moving, etc., but at the same time takes advantage of the situation by telling possible buyers that his cow has been passed, and in some cases it actually has been subjected to the tuberculin test free of all expense to him.

The practice of sending defective animals to market is apt to result in rejection on suspicion, and the person who thus endeavours to get rid of a doubtful beast deserves a repulse.

As at present carried out, the Tuberculosis Order is in effect only a voluntary enactment, and leaves loopholes for the escape of clinical cases. It is too often used as a means of getting rid of a " waster " which ought to have been eliminated months before, but one will not be able to find out and deal with such cases until there is a systematic registration and inspection of all herds.

This would put an effective and very necessary check on the movements of and trade in " slink " cattle, which seems to be little affected by present legislation.

Discussion

Mr. H. C. Rockett stated that although there was one Order, it seemed to be carried out differently in different counties. Many cases were not reported that should be. Some of them were through ignorance, but farmers did not like having anything to do with the authorities, although the police preferred that the farmer should report his own cow. If the veterinary surgeon reported it, some of the police ran away with the idea that the owner had been trying to hide it. Regarding carcasses that might be fit for human consumption, very few butchers would handle them and he believed that they mostly became knacker meat. In some districts the police were content to serve notice of slaughter, but in others the Superintendent insisted on Police representation at the *post-mortem*. which the farmer did not like. He failed to see how overlapping by veterinary inspectors could be avoided, but where overlapping occurred they should not attend to others' clients. It rested with the veterinary inspector concerned to play the game.

Mr. J. F. D. Tutt said that the present Order did no more than nibble at the disease and the only effective way of overcoming tuberculous milk was by inspection of herds and cowsheds by qualified veterinary surgeons and not sanitary inspectors.

Mr. Gould stated that he agreed with Mr. Rockett that the Order was worked differently by individual inspectors. It was a matter of co-operation to ensure smooth working. Sometimes one received that and at other times it was lacking.

The Veterinary Record

September 17th, 1932.

VETERINARY PROGRESS IN SPAIN

AMONG the reforms initiated in Spain on that country becoming a Republic is a complete re-cast of its Veterinary and Animal Husbandry Services. Through the courtesy of Señor Manuel Medina and the National Veterinary Association of Spain we have received a pamphlet which sets forth in concise form new legislation creating a properly organised system of administration under one body termed " Direction General de Ganaderia e Industrias Pecuarias." For the information of our readers a review of the pamphlet is given in this week's issue, and we may congratulate our Spanish confrères on a completeness of organisation which not only places veterinary and animal husbandry services in Spain on a sound basis, but reflects, as it undoubtedly will, that true scientific attainment which can only be achieved by well-ordered organisation and effort.

It is very gratifying to learn that under the Section of Veterinary Instruction the period considered necessary for the qualification of a veterinary surgeon has been fixed at five years, which, it may be remarked, coincides with our own newly-adopted course commencing in October next; and for instructional purposes we see great advantage in attaching livestock stations to each of the four veterinary schools. Furthermore, in that broad field of Zootechny, in which the veterinary expert by reason of his training is well fitted, there is merit in the adoption of the superior grade title " Ingeniero Pecuario " involving extended study into those finer issues of animal form and function, and which make for improvement of livestock, and a curtailment of wastage from animal disease. It is a *sine qua non* that a strong Hygiene and Animal Health Section under a General Direction, and with a competent staff of veterinary surgeons must result in a better level of both animal and human health, and which may be regarded as the hall mark of veterinary efficiency.

(*Continued on next page.*)

Lastly, it is very satisfactory to note that under the new legislation of Spain the unqualified person is ruled out, and that the practice of veterinary medicine and surgery may only be carried out by a duly qualified veterinary surgeon. It would be greatly to the advantage of veterinary science if other countries would follow Spain's example in this respect.

Review

[República Española. Direction General de Granaderie e Industrias Pecuarias. (The Spanish Republic. General Direction of Cattle Breeding and Livestock Industries). 142 pp. Madrid, 1932. Edited by the National Veterinary Association of Spain.]

The book under review is an announcement of a complete reorganisation of veterinary services in Spain and lays down a detailed plan of the lines upon which the new organisation is expected to be developed.

The advantage of placing all matters relating to livestock industries under the control of one body is discussed, and the Spanish National Veterinary Association expresses its appreciation of the opportunity afforded it by the new Government. A law of the new republic decrees that all services related to the study and application of the production, exploitation, improvement, industrialisation, prophylaxis and the treatment of animals and their products, with the sole exception of those of the Military Veterinary Corps, are to be controlled by one body, to be known as the General Direction of Cattle Breeding and Livestock Industries. This body is to be dependent upon the Ministry of Commerce and Public Works. There is, in addition, a Department of Alimentary Hygiene, dependent upon the Ministry of Health, but a liaison office is to be formed between this and the General Direction, the duties of which will be to exercise a control over animal diseases communicable to man. The new body is divided into three sections, with a veterinary surgeon at the head of each.

Section I.—Veterinary Instruction.

Four veterinary schools are to be maintained, and in each will be provided the means of acquiring the veterinary title, and facilities for special courses relating to livestock. A limited amount of investigational work will be carried out and to each school will be attached a livestock station. A detailed plan of the curriculum is given, and this includes, in addition to the subjects normally included in curricula of veterinary schools, German, mathematics, agriculture, forestry, milk industry, fowl breeding, crops, meat industry, bee-keeping and rural economy. The course extends over five years. The qualification entitles the holder to practise as a veterinary surgeon or to obtain a post as municipal veterinary inspector. It does not entitle him to hold other posts in the General Direction of Cattle Breeding and Livestock Industries. For this the title of "Veterinary Engineer" is required, which involves a one year post-graduate course at the Madrid school, receiving instruction in analytical chemistry, cytology and advanced genetics, bacteriology, statistics and livestock commerce, epizootiology, building and veterinary history. Veterinary surgeons who already occupy posts similar to those to be created in the General Direction may obtain the title of "Veterinary Engineer" by submitting a thesis within one year. Other veterinary surgeons may obtain it by completing the year's course before July, 1934.

All the schools will maintain close contact with their livestock stations and in addition will be helped by the Army in obtaining sick animals for demonstration purposes.

Sixteen professors will be employed at each school, and those teaching veterinary subjects must hold the title of Veterinary Engineer.

The same section will also be responsible for the development of livestock societies, insurance and granting of credits for agricultural development, the publication of bulletins, organisation of campaigns for advertising up-to-date methods of improving livestock, granting of scholarships, and rendering aid to companies or societies concerned with reclaiming of land, insurance, etc.

Section II.—Improvement of Livestock: Investigations and Enquiries.

This section is responsible for the maintenance of livestock stations which are to be opened in various districts and to be under the control of a director at Madrid. The object of these centres is to carry out selection by breeding, feeding trials, study of foodstuffs peculiar to the districts in which they are situated, study of the manufacture of milk products, the raising of bees and silk insects, egg laying trials, and to keep sires of all species bred in their districts.

It is announced that the General Direction intervenes permanently in the use of sires of all species and will exercise a strict control over all animal reproduction. For this purpose four classes of sires are recognised, *viz.*, (1) those belonging to the state; (2) those lent to private individuals by the state; (3) privately-owned sires being hired under state regulations; and (4) privately-owned for private use. All privately-owned sires must be registered, and details of service must be submitted to the Municipal Veterinary Inspector. Any animal served unsuccessfully four times is to be examined by him, and in the event of dispute regarding the most suitable type of sire to employ

the Veterinary Inspector is asked to decide. A stud may only be maintained on registered premises and a fine is imposed for the use of any but registered sires.

In each locality a registration book is to be kept by the Municipal Veterinary Officer, and with the help of the livestock stations he will keep detailed accounts of all services, births and transactions in animals. The information collected is eventually dealt with by a central board of statistics.

Agricultural shows will be organised by this Section and it will also exercise control over all shows held by other societies.

Through this section the General Direction holds itself responsible for supplying the Army with a sufficient number of horses of a suitable type in the event of war.

The remainder of the section will exist in the form of an Institute of Animal Biology. One department of this institute is concerned with pathological research only, and another with ascertaining the nature of all sera, vaccines, diagnostic and therapeutic agents offered for sale, and with preventing the sale of any article which is not safe, pure and efficacious.

Section III.—Hygiene and Animal Health.

This section is responsible for evolving measures for the control of infectious diseases of animals and against the transmission of these to man. It controls all sanitary and veterinary inspection in abattoirs and in fish and meat factories, and the sale, importation and exportation of animal produce. All persons handling food must possess a certificate of health, renewable from time to time.

Under the new Government it is an offence to perform any act of a veterinary nature without the possession of a veterinary qualification, and a farrier may only practise his art under the technical direction of a qualified veterinary surgeon.

Agricultural Research Council Scholarships.—As, on account of the financial emergency, no other funds were available for Agricultural Research Scholarships in the academic year 1932-33, the Agricultural Research Council decided that, in order to keep the Scholarship Scheme in being, they would award, out of the funds at their disposal, not more than two Studentships for Research in Animal Health, and not more than three Agricultural Research Scholarships. The Council have now made the following awards in connection with the former:

Studentships of Research in Animal Health—Mr. G. Slavin, M.R.C.V.S., and Mr. E. G. White, M.R.C.V.S.

The administrative arrangements in connection with these awards are being undertaken on behalf of the Council by the Ministry of Agriculture and Fisheries and the Department of Agriculture for Scotland.

Clinical Communication

AFRICAN HORSE SICKNESS

Evidence of Natural Resistance under Certain Conditions

LIEUT.-COLONEL A. G. DOHERTY, *M.C.*, M.R.C.V.S.

Late C.V.O., Kenya

The decreasing importance of horses and mules in the economic life of practically every part of Africa may leave our knowledge of this disease at about its present stage so far as preventive medicine is concerned. Viewed from the individual clinical aspect, horse sickness presents certain features pointing to a useful degree of natural resistance. To discuss them may be helpful to those who are called upon to organise horse management in isolated places subject to the infection.

The first consideration with horse sickness is to prevent infection. We know, unfortunately, what difficulties the institution of reliable preventive measures can present in many parts of the Continent where horses and mules are kept and used. This note deals with the possibilities of promoting recovery, after infection, but before the characteristic, and usually fatal, symptoms appear. The material on which it is based is spread over a number of years and embraces conditions represented by animals living entirely in the open, partially in the open, and housed in stables under modern stable management.

The question under discussion, therefore, is the promotion of recovery of the naturally infected animal, by adopting measures with the least practical delay after the initial rise of temperature.

There are two important factors to be considered:—

(1) The degree of health of the infected animal before infection.

(2) The detection of the initial rise of temperature within a few hours. (A 12-hour record is efficient for the purpose, provided the A.M. recording is timed to precede any work or exercise.)

(1) Dealing with the first of these factors—the degree of available vitality, as ordinarily represented in the normal animal by the balance between nutrition, etc. and the output of energy, seems to have an important bearing on the ability of the body forces to prevent the changes in the body tissues and fluids usually associated with the fatal symptoms of horse-sickness. Recovery appears to be favoured when maximum health obtains.

(2) While the maintenance of maximum health may be dependent on circumstances, difficult or impossible to control, the detection of the initial rise in temperature is possible only when animals are under modern conditions of management. The initial rise is the signal to institute measures best calculated to assist the body forces to disarm the invading infection. To conserve energy by complete rest appears to release the maximum amount for this purpose.

In my experience it has been possible for an outbreak of horse sickness, in stabled horses, to result in 100 per cent. recoveries when the animals concerned were, before infection, in maximum health and the daily use of the thermometer part of the stable routine. The outbreak to which I refer occurred close to Nairobi in a racing stable. There were seven horses infected at the same time. Temperatures rose rapidly in each case to 105° or over and did not return to normal for approximately a week. Each case was dealt with on similar lines—complete rest, with salines or aloes, where indicated, to obviate constipation. All the horses recovered without showing any symptoms beyond temperature and slight, very slight, injection of the visible mucous membranes. (The diagnosis of horse sickness was suggested by a fatal case in the same stable two weeks previously.) When the animal that was first infected did not show fatal symptoms and the second was, by his temperature, beginning to indicate a return to normal, two horses that were at the height of their temperature reaction were bled to furnish blood samples for sub-inoculation. The samples were sent to Sir Arnold Theiler who, at that time, directed the Research Laboratory of the South African Government at Pretoria. In due time Sir Arnold reported that some of the blood was injected into a susceptible horse and caused its death from typical African horse sickness. That is an example of an important aspect of natural resistance to horse sickness. The fatal case to which I referred had been on daily temperature but had been treated; various methods were employed, some of which reduced vitality considerably.

From a broader point of view and under entirely different conditions a similar line of thought can be suggested from the following observations, although details are, naturally, unobtainable. During the East African campaign 1914-18, in which I had experience in the dual responsibility for the Veterinary and Remount Services with the Expeditionary Force, a mountain battery with an establishment of 220 mules maintained the slowest rate of wastage for any unit with the Force subject to similar conditions of service. Throughout the campaign this battery used the thermometer regularly and, when possible, rested mules with a temperature above normal. The wastage in animals with the Force was practically 100 per cent. Horse sickness was credited with mortality second to that caused by trypanosomes, which was highest. There were approximately 64,000 horses and mules used with the Force during the campaign.

It would appear from these observations that there are indications to suggest that (1) the maintenance of maximum health and (2) the daily use of the thermometer with (3) complete rest when the temperature rises can play a useful part in lessening mortality from horse sickness in areas subject to seasonal outbreaks of the disease.

Abstracts

[Testicle Grafting and Sympathetico-diaphteresis. Velu, H. *Bulletin de L'Académie Vétérinaire de France.* April, 1932.]

The author, some years ago, called attention to the possible application of the method which was being used by surgeons on human patients to those of the veterinarian and expressed the opinion that it might supplant neurotomy in certain cases. Fleuret, in 1931, published his method of performing the operation and the favourable results obtained from it.

Quite recently an anonymous contributor has described the operation and its results in an essay for the Trasbot prize. The surgical resection of the periarterial sheath (as recommended by Leriche) is not without difficulties and it is now sought to replace it by the local application of chemical substances. This method is due to Doppler, of Vienna. In 1923 Doppler and his master Lorenz had the idea of combatting the vaso-constrictive action of the sympathetic fibres of gastric arteries by chemical action. Working in silence for five years, Doppler in 1928 and 1929 made known the results of his experiences. Since then, in 1931, Doppler has published the results obtained in over 1,000 interventions. Between times Simon and then Desplas called attention to the simplicity of the method and its efficacy in the treatment of affections of the limbs and in defects of the genital organs.

The operation consists in the destruction of the vaso-constrictor sympathetic branches by an aqueous solution of carbolic acid, 5 to 7 per cent.

Technique.—The artery being laid bare, its sheath is dabbed with little pads of cotton-wool soaked with the carbolic solution and is seen to bleach rapidly. The artery, if an important one, is soon observed to flatten and the sheath

could then easily be removed, but this must never be done and in this Doppler simplifies the process of Leriche. Apart from its usefulness in affections of the limbs, the operation provokes hyperæmia of certain organs, notably the endocrine glands, and by that stimulates their functions. After applying the carbolic solution the artery is seen to contract and its pulsations to augment in amplitude, a fact particularly observed in the peripheral arteries, and in the muscles the veins and then the arteries begin to dilate. In from eight to 24 hours dilatation is complete and the organ becomes warm and rosy. This vaso-dilatation gradually extends itself until the whole organism is involved. Whatever the seat of the artery involved, pluri-glandular effects are observed after sympathetico-diaphteresis and these effects are durable. Doppler found them still existant after six years. They extend to the capillary loops.

On the sex glands (male and female) the pancreas and the thyroid the effects of the operation are marked. Cutaneous and mucous capillary territories soon give evidence of the action, but endocrine phenomena are not apparent for some weeks and are not fully developed for months, but are then maintained for years. Sympathetico-diaphteresis of the testicular vessels determines in 90 per cent. of cases an accelerated growth of hair, augmentation of volume of the testicle and stimulation of the genital functions.

The first application of Doppler's method to veterinary practice was made at Milan by M. Antonini in 1929 on an old stallion become apathetic, and with most happy results. The author had occasion to apply Doppler's process to five apathetic animals and of these three could not be well followed to ascertain results and must be classed as negative; in the other two the results were remarkable. The initial technique of Doppler was followed. After incision of the envelopes of the testes the albuginea was scarified and the scarified zone was covered with gauze on which 5-7 per cent. carbolic acid was poured—the tissues immediately blanched. After a few minutes the gauze was removed and the wound sutured and painted with collodion. A recent letter from Professor Doppler advises that scarification of the albuginea is unnecessary and that he limits himself to injection of the spermatic cord with 4 or 5 per cent. carbolic acid and massage.

Observation 1.—Donkey stallion, born at Morocco 1923. In 1928 the animal made six services with great difficulty. In 1929 the animal, though in good condition, refused to serve. Sent to Casablanca October, 1929, and operated on by the method of Voronoff in November and returned for service in season 1930. The operation was a complete failure and no service could be obtained. December, 1930, the animal was again sent to Casablanca and underwent Doppler's operation (scarification of the albuginea and application of carbolic solution). Returned in spring of 1931. Six mares were served by the animal without any of the manœuvres generally associated with service with the ass stallion. Four of the mares have refused second service and are believed to be in foal. In February, 1932, sexual ardour maintained—shown when brought near a mare in season.

Observation 2.—On August 31st, 1931, there was brought to us a Persian ram imported into Morocco two years previously and since its arrival could not be got to serve ewes: in the presence of ewes in season he showed complete indifference. We were tempted to perform the classic operation. Both testes found atrophied—size of a hen egg instead of that of a fist—and adhesions between visceral and parietal coverings, so that the testes could not be freed to operate on the albuginea. In the left vaginal sheath the adherences were not so great and there the albuginea was exposed and operated on, but only on a restricted part. On September 7th the ram was returned to its proprietor, the wound having cicatrised.

On September 15th the owner wrote to say that the Persian ram shows unaccustomed ardour near ewes in season—it is the first time for two years that he has manifested desire.

The result will be seen in five months.

These experiences are too short to enable us to make conclusions in a categorical manner. Nevertheless, the method is worth trying in cases of sexual apathy, infantilism and early senility so frequently observed in our well-bred reproducers.

W. R. D.

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[**Periarterial Sympathectomy in Veterinary Medicine.** An essay contributed in the competition for the Prix Trasbot. Maqué, M. *Bulletin de L'Académie Vétérinaire de France.* April, 1932.]

The author of the essay was inspired by the writings of Leriche to apply that surgeon's operation, resection of the peri-arterial sheath, in the treatment of certain chronic lamenesses of horses. The effects of neurotomy are considered to be only temporary and at best a *pis-aller.*

Long ago veterinarians remarked on the rôle of circulatory phenomena in the genesis of bony defects. Good results have been claimed for ligation of the digital arteries in case of side bone lameness and in founder. The author, having no success with the procedure nor with the application of alcohol to the nerves, as substitute for neurotomy, has resorted to peri-arterial sympathectomy in the treatment of

founder, navicular disease and osteo-arthritis. The operation has been practised on the digital and on the posterior-tibial arteries and consists in laying bare the vessel and in removing about two inches of its adventitia all round. There is immediately spasm of the vessel, the circulation at the peripheral end being almost interrupted—a condition that lasts some minutes. There follows permanent dilatation of the vessel and in six to eight weeks recovery, as a rule, results.

A number of successful cases are quoted in patients affected by laminitis, navicular disease and side bone. Two cases of spavin were treated by sympathectomy of the posterior-tibial artery. One case recovered in ten weeks and the other was not improved. Both animals were over ten years old. The operation is most successful when practised on young animals with defects in course of evolution.

W. R. D.

FOWL PARALYSIS RESEARCH

There was an excellent attendance at the sixteenth annual poultry conference held at the Harper Adams Agricultural College from August 9th to 12th. Discussion groups again formed an attractive feature, disease problems taking prominent place.

Mr. W. R. Kerr, M.R.C.V.S., of the Ministry of Agriculture, Northern Ireland, said a promising line of investigation into fowl paralysis was in regard to the possibility of its being a virus disease. Attempts so far made to reproduce the disease by inoculation had not been satisfactory. If paralysis were actually induced by inoculation it was difficult to see why only 10 per cent. or less of disease inducing inoculations were reported, while in natural outbreaks the percentage of affected birds is often so much higher, 66 per cent. Obviously the disease was infectious, even highly infectious, but the results of experimental inoculations suggested that some factor as yet unknown was intimately concerned with the process of infection in natural outbreaks.

One suggestive characteristic in the history of observed outbreaks, and one that, in Mr. Kerr's view, might open up a new avenue of approach, was that when a new strain is introduced on a farm where the disease exists, the newcomers apparently remain immune even where they have access to the same ground. That practice had been advised with very good results. One condition for its success, however, seemed to be essential: intercrossing between the new strain and the old must not take place. Where that had been known to occur the progeny had become affected. Thus there was a suggestion that immunity or susceptibility or predisposition to the disease are hereditary in nature.

Egg transmission experiments would appear at first sight to confirm that possibility, but could not be regarded in the light of a test of true hereditary transmission since the progeny had not been exposed to infection. In certain outbreaks circumstances appeared to point to the eggs as a source of the infection in a hitherto unaffected flock.

N.V.M.A. Divisional Report

SOUTHERN COUNTIES VETERINARY SOCIETY

Annual Meeting at Christchurch*

The annual general meeting of the Southern Counties Division, N.V.M.A., was held at the house of the President (Major E. S. Martin), Christchurch, on Friday, March 18th, 1932, with the President in the chair. There were also present Major J. S. Wood, Messrs. H. C. Rockett, J. B. White, C. Pack, Wm. Caudwell, R. E. Klyne, Bernard Gorton, J. F. D. Tutt, George Parr, the Hon. Secretary, Mr. Geo. N. Gould, junr., and one visitor, Mr. G. B. Howatt.

Apologies for absence were received from Mr. Moffatt, Colonel P. J. Simpson, Professor F. T. G. Hobday, Dr. A. L. Sheather, Messrs. Henry Gray, Turney and Kelley, of Worthing, Facer and Burgin, and Major Taylor.

Treatment of Animals of Poor Persons.—The Secretary reported that since the last meeting he had had correspondence with Mr. Kelly in relation to the free veterinary treatment service at Worthing, and he was hoping that additional members would be recruited from that town. He added that Major Andrews, one of their members, had gone to India. Major Stevens, of Portsmouth, had also written, expressing the hope that the free service for sick animals belonging to poor persons would soon be started at Portsmouth.

Hon. Secretary's Report

Annual Report and Balance Sheet. — The Secretary then read his annual report, and presented the balance sheet for the past year. The former was as follows:—

The membership in April, 1931, when I took office, was reputed to be 30. Of these 16 were fully-paid members and six honorary members. We have lost two members during the year by death—Mr. Whitley-Baker and Mr. Piesse. One member, Mr. Fowler, has resigned. Major Andrews has gone to India and Mr. C. Pack has been elected an hon. member of the Society in recognition of his past services and support. We have had four new members: Major Taylor, Mr. J. B. White, Mr. J. F. D. Tutt and Mr. B. Gorton. Our membership at present is 29—22 fully paid, seven unpaid.

Meetings.—To-day's is the fifth meeting in 12 months. At the August Southampton meeting the Hon. Secretary read a paper on Canine Dystokia. There were seven members present. At the Christchurch September meeting Professor Wright read a paper on Anæsthesia and Anæsthetics, at which 11 members and five visitors were present. At the December Winchester meeting Major Kirk attended and opened a discussion on Free Veterinary Treatment, as a result of which this Society pledged its support to the decentralised scheme drawn up by the N.V.M.A. Twelve members were present and one visitor. The February meeting was held at Southampton,

* Received for publication August 12th.

when Professor McCunn read a paper on "Some Problems and Methods encountered in Canine Surgery." Thirteen members were present and five visitors. The meeting to-day is notable for the fact that three of our members—Mr. J. F. D. Tutt, Mr. J. B. White and our President—are reading short papers which should provoke an interesting discussion.

Royal Show Meetings.—Arrangements have been entered into by this Society to run three meetings at the Royal Show. These are now complete and a good attendance is necessary to ensure their success.

Free Veterinary Treatment of Sick Animals.—Schemes have been put into operation in Southampton, Winchester and Worthing and are doing a great deal to counteract unqualified treatment.

Treasurer's Report

The Treasurer's report disclosed an increase in expenditure as a result of the far greater activities of the Society; but a satisfactory balance remained.

The President, in moving the adoption of the report, expressed the sincere thanks of the Association to Mr. Gould, remarking that the report was eminently satisfactory and that Mr. Gould had done a tremendous amount of work. He was a very busy man and they were grateful to him for undertaking not only the secretarial duties, but also those of Hon. Treasurer.

Major Stewart Wood, in seconding, endorsed the President's remarks and added that Mr. Gould had infused energy into the Society, which was on the down grade when he assumed his duties.

Mr. J. F. D. Tutt associated himself with the remarks of the previous speakers, and the reports were adopted.

ELECTION OF OFFICERS

The election of officers for the ensuing year resulted as follows:—*President*, Major E. S. Martin (Christchurch); *Vice-Presidents*, Mr. J. F. D. Tutt (Winchester) and Mr. Harding (Salisbury); *Hon. Secretary and Treasurer*, Mr. G. N. Gould, junr. (Southampton).

In acknowledging his election as President, Major Martin said that he was only too pleased to be able to do anything he could on behalf of the Society, which was performing a very useful work amongst its members.

Mr. Gould announced that he would take on his offices for another year, but he was doubtful whether he would be able to continue after that.

The President hoped that the Society would bear in mind Mr. Gould's remarks. The Secretaryship was not an office that could be filled at a moment's notice and it was essential that it should be held by somebody who had the Society's interests at heart and knew its work. He hoped that Mr. Gould would give them due warning as to whether he would be able definitely to continue after the end of the ensuing year.

Proceeding, the President said that it was necessary to elect a Council for the Society. The Council had not functioned at all, the Secretary having done all the work. Two more members were required to act with the President, Vice-Presidents and the Hon. Secretary-Treasurer.

The Secretary said he was hoping that the Council would be active during the coming year and he was expecting every member of it to do some work.

The President remarked that the Society would be active at the Royal Agricultural Show in the coming year and the support of all the members would be required then. Major J. S. Wood (Parkstone), E. R. Harding and H. C. Rockett were elected to the Council.

Papers.—The following papers were now presented to the meeting:—(1) "Short Notes on the Use of Various Therapeutic Agents," by Captain J. F. D. Tutt; (2) "Acute Septic Metritis in the Cow," by Mr. J. B. White; (3) "Observations on the Tuberculosis Order," by the President. [These papers, together with the discussions on them, are reproduced earlier in this issue.—Ed., *V.R.*]

Tea followed, the members and visitors being the guests of the President and Mrs. Martin.

A vote of thanks to the essayists was passed with acclamation and this was followed by a vote of thanks to the President and Mrs. Martin for their kind hospitality.

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Meeting at Southampton*

A meeting of the Division was held on June 17th, 1932, at 10, Landguard Road, Southampton, with the President (Major E. S. Martin) in the chair. There were also present Major J. S. Wood, Messrs. C. Pack, W. Caudwell, and W. F. Maynard, Miss A. Cust, Mr. Moffett, Mr. C. Turney and Mr. G. N. Gould (Hon. Secretary).

Apologies for absence were received from Messrs. Rockett, White, Facer, Sheather, Burt, Simpson, McIntosh, Edie, Male, Gorton, Ripley, Parr, Tutt and Professor Hobday.

The Secretary was unable to read the minutes of the last meeting, owing to faulty reporting.

Nomination of New Members.—Proposed by Mr. G. N. Gould and seconded by Major E. S. Martin:—Mr. Turney, of Worthing, and Mr. Kelly, of Worthing; proposed by Mr. J. S. Wood and seconded by Mr. G. N. Gould:—Mr. Robertson, of Wimborne.

The major part of the business was connected with correspondence received, which was read by the Hon. Secretary, and matters of importance were handed to each individual present for perusal.

Royal Sanitary Institute.—With reference to a letter dated January 28th, 1932, it was proposed by Mr. W. Caudwell, seconded by Mr. G. N. Gould, that no delegate be sent to attend the

* Received for publication August 12th.

forthcoming Conference. This was unanimously carried.

Royal Show Meetings.—The Hon. Secretary stated that the Chairman for the three meetings to be held on Wednesday, Thursday, Friday, July 6th, 7th, and 8th, would be:—First meeting, Mr. Male; second meeting, The Mayor of Southampton (Councillor F. Woolley); third meeting, Major E. S. Martin.

The Hon. Secretary suggested that at least two stewards should be in attendance on each day. Mr. Rockett had already agreed to act on the Friday. Mr. Caudwell agreed to act and he asked for further help, whereupon Mr. Pack agreed to act on Thursday, and provisionally Major Wood on Friday and possibly Mr. Moffett.

Advertisements of Royal Show Meetings.—It was proposed by Major Wood, seconded by Major E. S. Martin, and agreed, that three announcements be inserted in the *Southern Daily Echo*, one in the *Hampshire Advertiser* and one in the *Western Gazette*, Yeovil.

Treatment of Sick Animals of the Poor.—It was proposed by Mr. Maynard, seconded by Miss Cust, and carried, that a resolution be sent to the "National" asking them to approach the British Medical Association, drawing their attention to the fact that many doctors acted on local committees of a certain organisation and further drawing their attention to the status of that organisation.

Discussions followed *re* the progress of Free Clinics in the area of the Division, and Major Martin expressed pleasure and gratitude at the work carried out by Mr. G. N. Gould in this connection.

Post-Mortem Specimens.—Major E. S. Martin produced some interesting *post-mortem* specimens which consisted of some cystic calculi of large size taken *post-mortem* from a dog, and an exfoliation of a "splint" of a thoroughbred, which he extracted from a wound that refused to heal after injury from barbed wire. He also produced a diseased mesenteric lymphatic gland for inspection—the consensus of opinion being that it was tuberculous.

The Hon. Secretary exhibited 42 cystic calculi removed from a Pekinese bitch, the size varying from that of a grape to that of a split pea, and exhibited the bitch, which had been operated on six days previously. He also demonstrated a number of interesting operation cases in his infirmary—three being of scrotal hernia in West Highland dogs—one of 14 months and the other of 4 months.

Mr. Gould pointed out the interesting fact that they were all bred from the same sire and that in every litter one or more of the dog puppies had scrotal hernia and in every case it was on the left side. He had operated on seven or eight bred from this particular dog—they were all excellent specimens, but the transmission of the tendency to hernia was undoubtedly hereditary.

He also showed a Siamese cat which had had a Cæsarean operation, and its three kittens, which were fostered by another cat, although her kittens were nearly three weeks old at the time.

Another case demonstrated was one of hysterectomy for septic metritis in the bitch.

Before the close of the meeting Miss Cust produced what she considered to be a most ingenious form of non-slip pad for horses and requested that any of the company present who have horses in their practices would try the pad. Miss Cust has recently returned from a visit to Trinidad where, as it is generally known, the roads are very glassy and slippery and where this article had been brought to her notice. The pads were of the bar-pad type cut out by hand from old motor tyres—the wings being placed between the hoof and the shoe and nailed into position in shoeing.

Miss Cust also described a new method of destroying dogs which she claimed to be definitely and entirely painless, *viz.*, the use of carbon monoxide gas from the exhaust pipe of motor-cars.

The meeting then closed with a vote of thanks to the Chairman (Major E. S. Martin).

Tea followed, the President and members being the guests of the Secretary, to whom a vote of thanks was passed.

G. N. Gould, *Hon. Secretary.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Sept. 19th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Oct. 1st.—New Five Years' Course, Membership R.C.V.S., comes into operation.

Oct. 3rd.—N.V.M.A. Committee Meetings, 2, Verulam Buildings, Gray's Inn, W.C.1.

Oct. 4th.—N.V.M.A. Committee Meetings, 2, Verulam Buildings, Gray's Inn, W.C.1.
N.V.M.A. Council Meeting, 10, Red Lion Square, W.C.1.

Oct. 5th.—R.C.V.S. Committee Meetings.

Oct. 6th.—R.C.V.S. Committee Meetings.

Oct. 7th.—R.C.V.S. Committee and Council Meetings.

Nov. 1st.—All changes of address for insertion in the 1933 Register to be reported to the Registrar, R.C.V.S.

N.V.M.A. Hon. Secretary's Daughter Weds

Marriage: Nickinson — McIntosh. — At St. Andrew's Church, Kingsbury, on September 8th, Eric Dudley Nickinson, of The Broadway, Cricklewood, to Minnie Scott, only daughter of John W. McIntosh, F.R.S.E., M.R.C.V.S., and Mrs. J. W. McIntosh, Dollis Hill Farm, N.W.2.

The above announcement is one which will be read with great interest by the very large number of our readers who enjoy the personal friendship of the popular Hon. Secretary of the N.V.M.A., Mr. J. W. McIntosh, and of Mrs. McIntosh and their daughter, who is known to a wide circle of the profession through her regular attendance at Congress in company with her father.

The bride's close and happy association with the profession was well exemplified by the composition of the large and distinguished assembly at her very pretty wedding in the charming and historic Old Kingsbury Church, Middlesex, and at the reception held at the residence of her parents. Accompanying the President of the N.V.M.A. (Lieut.-Colonel P. J. Simpson) and Mrs. Simpson were the Past-President of the R.C.V.S. (Mr. G. P. Male) and Mrs. Male, Mrs. Conchie, of Kidderminster, Major and Mrs. G. W. Dunkin, Mr. and Mrs. Herbert King, Mr. and Mrs. Neville King, Mrs. Cyril King, Captain and Mrs. McDonald, of Putney, Mr. and Mrs. Trewin, of Watford, Mr. Jack Willett and Mr. and Mrs. Willett, of Staines.

No more delightful, and may we say romantic, setting for such an occasion could be found than the picturesque surroundings of the fine old farmstead at Dollis Hill, where, hard by the spot that witnessed the start of Dick Turpin's ride to York, was erected the large and gaily-decorated marquee where the guests were welcomed, in true Highland fashion, to the skirl of the bagpipes. Pipe-Major Murdo Mackenzie, with a fine native sense of the fitness of things, played that intriguing Scottish air, "Woo'ed and married and a'," and so lustily did he blow as the happy pair departed for their honeymoon in the West of England, amid showers of confetti and scarcely less palpable good wishes, that the strains of "Hey bonnie lassie we'll bundle and go" must have resounded through the Scottish glens. A very happy afternoon was brought to a close by the playing of—

"Better lo'ed ye canna be,
Will ye no come back again."

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R.C.V.S. OBITUARY

Warnock, David. *O.B.E.*, M.R.C.V.S., 107, St. Louis Street, Oak Bay, Victoria, B.C., Canada. Graduated Glasgow, May 29th, 1889; died August 24th, 1932.

The Late Mr. Warnock's Distinguished Career

The *Vancouver Daily Province* reports the death of Mr. David Warnock, *O.B.E.*, M.R.C.V.S., who was Deputy Minister of Agriculture for British Columbia from 1920 to 1928, and who was widely known in Victoria, B.C. for his capable work for the Department of Agriculture during nine years' service.

Mr. Warnock was born in Lanarkshire in 1865, and after graduation at Glasgow went to Alberta in 1889, removing to Victoria in 1919. In Alberta he had an extensive experience as a veterinary surgeon and was appointed to the federal health of animals branch. He resigned in 1909 when nominated for the Alberta Legislature. He was elected for the constituency of Pincher Creek and remained in the provincial House for two years, later becoming a member of the House of Commons from 1911 to 1917.

Mr. Warnock was on active service from 1915 to 1917, and for that reason did not contest the 1917 election, although offered the nomination as Unionist candidate for Macleod constituency, having resigned the Liberal nomination on the question of conscription.

Serving with the British remount commission in Canada as chief veterinary officer, he was promoted to commanding officer in 1917. He was appointed an officer of the Most Excellent Order of the British Empire for services rendered during the war.

In 1909 he was an insurgent against the Alberta Great Waterways Railway deal in the Alberta legislature, when Premier Rutherford was compelled to resign, and he took a notable part in the great naval debate in the Federal House during the 1913 session.

Mr. Warnock was married in 1897 to Annie Whitelaw, of Dumfriesshire, Scotland, and leaves a son and daughter.

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The Late Captain John Peddie, M.R.C.V.S.

In recording the death of Captain John Peddie, M.R.C.V.S., of Doornfontein, Johannesburg, to which reference was made in our issue of September 3rd, a South African daily journal speaks of him as one of the best-known veterinary surgeons in that country and a noted lover of animals, and states that by his death the Witwatersrand Agricultural Society, the Auckland Park Racing Club and the Krugersdorp Racing Club have lost an exceedingly genial personality.

Born at Edinburgh 62 years ago, Captain Peddie qualified at the Edinburgh College and went out to South Africa during the Anglo-Boer War, serving as veterinary officer with the Rhodesian Field Force and with Colonel Henniker's Column. Captain Peddie joined the Imperial Light Horse during the South-West African Campaign and served with this regiment as veterinary officer. Many are the striking tributes paid to his love of horses by the men who served with him.

A period of service with the Johannesburg Municipality as veterinary officer preceded his entry into private practice at Doornfontein.

Captain Peddie, who is survived by his wife, was buried with full military honours at the Brixon Cemetery, Johannesburg.

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R.V.C. REBUILDING FUND

Two special *matinée* meetings organised by the committee of London greyhound tracks have resulted in a cheque for £1,500 being forwarded to the Royal Veterinary College towards its rebuilding fund. In addition a cheque for £250 has been forwarded to the Eton Manor Club, Hackney Wick, for use in the sporting activities of the club.

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ANONYMOUS £10,000 GIFT FOR R.S.P.C.A.

In an official announcement the R.S.P.C.A. say: "After hearing the true facts of the recent difficulties of the society, and of the attacks still being made upon it, a gentleman and his wife, who preferred to remain anonymous, handed to an astounded official at the society's headquarters £10,000 in Treasury notes as a donation to the society's general work. This donation has come at a most opportune moment, as it will enable the society to reduce the heavy overdraft which it has been compelled to incur at its bankers."

It appears that the money was taken into the office in two attaché cases. The man and his wife who brought it were an elderly couple. The man said: "We have heard that the society is

in financial need. We wish to present you with £10,000." They declined to give any information about themselves, and imposed no condition as to how the money should be used.

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EXPERIMENTS ON LIVING ANIMALS

The total number of experiments on living animals performed in Great Britain in 1931 was 613,562, according to the report to the Home Secretary of Mr. J. A. Giles, the inspector, which was published on September 8th. These figures show an increase of 162,740, compared with the total for 1930.

Anæsthetics were used in 25,129 cases, and 585,661 experiments were performed without anæsthetics. The experiments without anæsthetics consisted entirely of "inoculations, hypodermic injections, and some few other proceedings," but the report states that "in no case has a certificate dispensing entirely with the use of anæsthetics been allowed for an operative proceeding more severe than subcutaneous venesection."

Of the 25,129 experiments, comprising all the cases in which any serious operation was involved, 9,129 came under the provision of the Act which provides that the animal must be kept under an anæsthetic during the whole of the experiment; and must, if the pain is likely to continue after the effect of the anæsthetic has ceased, or if any serious injury has been inflicted on the animal, be killed before it recovers from the influence of the anæsthetic. In some 16,000 instances the initial operations were performed under anæsthetics from the influence of which the animals were allowed to recover.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net.	*Post Free.*
	s. d.	*s. d.*
House of Commons Reports and Papers:—		
108. Experiments on Living Animals. Return showing the Number of Experiments on Living Animals during the year 1931	1 3	1 5
Empire Marketing Board:—		
Reports:		
58. Cattle-Breeding in Jamaica and Trinidad. Report on, August, 1932. (88-501 58)...	1 0	1 2

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In spite of the adverse circumstances of 1931 the voluntary gifts for the maintenance of London hospitals amounted to £1,763,000, which, though slightly less than in 1930, was more than in any other year out of the five covered by the statistical review issued last month by King Edward's Hospital Fund for London.

The Editor acknowledges the receipt of the following:—

Report of the Poultry Pathological Research Laboratory, Goring, Reading, 1931-32.

Report of the North of Scotland Division, from Mr. J. McAllan, Hon. Secretary.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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LADIES' VETERINARY BENEVOLENT GUILD DANCE AT THE FOLKESTONE CONGRESS

To the Editor of the Veterinary Record.

Dear Sir,—I should be glad if you would kindly give me this opportunity of thanking everybody who so kindly assisted in making the above dance so successful, both by their purchase of tickets and attendance and in some cases by generous donations. Without the very great assistance of the N.V.M.A., and particularly of Major Dalling and his helper Miss Arnold, it would not have been possible.

I am pleased to say that after all expenses have been paid, a cheque for £63 5s. 6d. has been sent to the Honorary Treasurer of the Guild. It is to be hoped that this function may become an annual one.

Yours faithfully,
Elsie M. Wooldridge.

Craigside Hydro,
Llandudno.
September 11th, 1932.

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INTRA-THORACIC ŒSOPHAGEAL OBSTRUCTION IN THE DOG

To the Editor of the Veterinary Record.

Sir,—In your issue of September 10th, 1932, Lieut.-Colonel A. F. Castle describes a case of this nature in a terrier bitch, which terminated fatally. He states that he has been assured by a well-known canine surgeon that gastrotomy, with a view to withdrawing the foreign body into the stomach, is the only practicable measure to be adopted for the relief of the condition.

The object of this communication is to point out that there is another, and highly successful operation, available. I refer to presternal œsophagotomy and the withdrawal of the obstructed piece of bone forwards, by the aid of long forceps, and out of the operation wound.

In a series of 15 such cases I have had 13 successes.

I described the technique of the operation in the *Veterinary Journal* for June, 1929, p. 266.

Yours faithfully,
J. G. Wright.

Royal Veterinary College,
N.W.4.
September 12th, 1932.

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TAIL-INJURY APPLIANCE

To the Editor of the Veterinary Record.

Sir,—I would be glad if you would publish this letter in order that I may get in touch with the gentleman who had a conversation with me at Folkestone Congress, concerning the tail-protecting appliance he had been using. I have been instrumental in effecting some alteration in the manufacture of these appliances, of which I am sure he would be pleased to know. I regret having forgotten the gentleman's name, but if these lines catch his eye I shall be glad to hear from him.

Yours faithfully,
Hamilton Kirk.

"Croyland,"
Finchley Road,
Golders Green, N.W.11.
September 10th, 1932.